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No. 37

Grasshopper Spray Program Covered 5 Million Acres

USDA Reports on Recent Control Efforts in Ten Western States of U.S.

WASHINGTON — Spraying of nearly 5 million acres against grasshoppers in 10 western states has prevented significant damage from the insects to wheat and other small grain crops, the U.S. Department of Agriculture has reported. Rangeland, idle lands and roadsides were sprayed by planes and ground equipment in the cooperative Federal-State rancher program in these states to fight the largest grasshopper outbreak since 1949.

Because the insects were killed before many could migrate to crops, wheat and other small-grain crops suffered little or no damage. However, later migrations caused some damage to row crops.

A second generation of grasshoppers could cause severe marginal damage to fall wheat in some areas unless farmers take preventive measures, USDA entomologists warned.

The cooperative Federal-State rancher program is about completed. Surveys now in progress will record (Turn to GRASSHOPPERS, page 25)

Anhydrous Ammonia Sales Increase 14%

MEMPHIS, TENN.—The sale of anhydrous ammonia as a nitrogen fertilizer increased 14% for the first seven months of 1958 over the same period of 1957, according to returns from a survey conducted by Jack F. Criswell, executive vice president of the Agricultural Ammonia Institute.

Total weight reported in the survey from 152 distributors was 108,793 tons, Mr. Criswell said. This is about one-fourth of the amount used annually by American farmers. Two-thirds of the dealers who reported showed increases in their business, he said.

The indicated upturn was unexpected, Mr. Criswell said, in view of widespread reports earlier in the crop year that weather conditions were hampering application. He said he felt that increasing farmer acceptance, along with generally higher rates of application, accounted for most of the gain.

The ammonia industry is placing increasing emphasis on the interrelationship of animal and human health with soil fertility, Mr. Criswell pointed out. He announced that the Institute would be holding its annual convention in Chicago Dec. 3-5 during the International Livestock Exposition.

"This convention will give thousands of American and Canadian farmers an opportunity of learning more about ammonia's role as nitrogen for direct application," he said.

Technical Side of Fertilizer Discussed At ACS Convention

CHICAGO—Papers on granulation, ammoniation, and various processes of manufacturing fertilizers were presented as part of the 134th meeting of the American Chemical Society here Sept. 7-12.

The division of fertilizer and soil chemistry in its sessions of Monday and Tuesday, Sept. 8-9, covered numerous factors of plant food manufacturing. Four researchers from the Tennessee Valley Authority, A. B. Phillips, R. D. Young, F. G. Heil and M. M. Norton, discussed high-analysis superphosphate by the reaction of phosphate rock with superphosphoric acid. They reported that the production of this high-analysis (Turn to TECHNICAL PAPERS, page 24)

Fertilization of Wheat on Increase, But Big Potential Remains, USDA Survey Shows

By J. R. Adams, L. B. Nelson and D. B. Ibach

Drs. Adams and Nelson are with the Soil and Water Conservation Research Division, and Mr. Ibach with the Farm Economics Research Division, Agricultural Research Service U.S. Department of Agriculture Beltsville, Md.

Part V. Wheat

Twenty-eight percent of the Nation's 54 million acres of wheat harvested in 1954 received fertilizer (2). Rates of nutrient application per fertilized acre averaged 18 lb. N, 27 lb. P₂O₅, and 19 lb. K₂O. Of all primary nutrients consumed during 1954, 7% of the N, 8.7% of the available P₂O₅, and 7.7% of the K₂O were applied on the wheat crop (1).

Fertilization of wheat increased markedly in the United States during the period 1947 to 1954, as shown in Table 1. In 1947, 18% of the wheat acreage received fertilizer, and this increased to 22% in 1950 and to 28% in 1954. These increases are due to extensive wheat fertilization in the Mountain, Pacific, and Plains States. The percentage fertilized has about held its own in the Corn Belt and Lake States and in the Northeast, and has decreased slightly in the Appalachian States and the Southeast.

During these same years, N rates per fertilized acre averaged 5, 8, and 18 lb., respectively. This trend toward increasing N rates was widespread throughout all regions. Phosphate rates for the United States have held fairly constant although some shifts occurred among the various regions. Rates increased somewhat in the Corn Belt and Lake States and in the Appalachian States and Southeast, held fairly constant in the Northeast Plains and Pacific States,

Good Marketing Prospect Seen for Fertilizers in Spite of Lower Supports

By JOHN CIPPERLY, Croplife Washington Correspondent

WASHINGTON — Despite predictions that lower levels of price support for cotton and corn will result in reduced acreage in these crops, fertilizer industry spokesmen have expressed belief that growers, particularly those in the Cotton Belt, will continue to put out capital for plant food and other materials on a large scale.

One responsible spokesman for the plant food industry said that those

who have forecasted that lower levels of price support will cause drastic reductions in acreage, are living in an economic "dream world." The theory that if price supports are reduced, the input of capital from local banks for example, will be similarly cut down, is a persuasive one.

However, the fertilizer trade is inclined to gamble on previous reports that there will be not less than 18.25 million acres of cotton planted next year under the provisions of recently-enacted farm legislation. (Croplife, Aug. 18, page 1.)

As to the Corn Belt prospects, the industry is not quite so certain, it was indicated, although there is considerable optimism that corn acreages will continue high for 1959.

These fertilizer officials dismiss the philosophy of USDA economists who predict that lower levels of support for a commodity will discourage bank acceptance of loan applications for the input of new capital for products such as plant food or pesticidal chemicals.

One responsible fertilizer industry official told Croplife last week that he doubted the "Cornell theory" of reduction of capital input for cotton would work out this year. He went further to say that most large acreage producers of cotton would be expected to expand their acreage this year. The official said he agrees with the previous announcement that there will be no more than 18.25 million acres of cotton produced this coming year and this should constitute a healthy plant food market.

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Dow Chemical Forms New British Subsidiary

MIDLAND, MICH.—Formation of a new subsidiary company, Dow Agrochemicals Ltd., for the manufacture and sale of agricultural chemicals in Great Britain has been announced jointly by The Dow Chemical Co. and Dr. Walter E. Ripper, British agrochemist.

The new company, with headquarters in London, will function as a manufacturing and marketing facility for one of Dow's weed killers, Dowpon, and eventually for other agricultural chemicals.

Dow controls the majority of the paid up capital of the new company and Dr. Ripper the rest. Dr. Ripper has been named the managing director of the subsidiary.

In addition to Dr. Ripper, members of the board of directors of Dow Agrochemicals are: Dr. Mark E. Putnam, chairman; Dr. Tyrone Gillespie, secretary; J. W. Britton, Colin Robertson and Clayton S. Shoemaker.

It is planned that the new company will import Dowpon from the United States before the Dow Agrochemicals' manufacturing plant in Great Britain starts operation.

MORE CORN PER HOUR

CHICAGO—An Illinois farm economist reported that farmers today can produce four times as much corn for every hour of work as their grandfathers could grow 50 years ago. R. A. Hinton, of the University of Illinois agricultural economics staff, said that back in 1910, a central Illinois farmer on good soils averaged only 50 bu. of corn per acre, and it took him 18 man hours and 46 horse hours to get the job done. At present, in that same area, a farmer can produce 75 bu. of corn per acre with six man hours and 5.4 tractor hours, he said.

PNPFA Annual Meeting To Feature "New" Session

PORLTAND, ORE.—The annual convention of the Pacific Northwest Plant Food Association to be held at Gearhart, Ore., Oct. 22-24, will feature a new type of session. An afternoon will be devoted to a "solutions" program with industry leaders taking part.

Talks will revolve around anhydrous ammonia, aqua ammonia, phosphoric acid, ammonium bisulfite,

potash and ammonium nitrate, plus discussions on new developments in fertilizer solution materials. A question and answer period by industry members will follow.

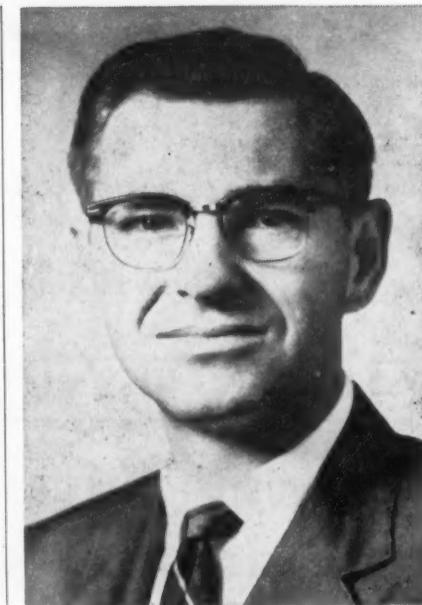
Some of the speakers will be Hazen Leavitt, Shell Chemical Co.; Bob Luckhardt, Collier Carbon & Chemical Co.; J. R. Briddenden, J. R. Simplot Co.

The convention will open on the morning of October 23, with business sessions occupying the first morning. A final report on the Oregon Grasslands Demonstration Project, sponsored for the past three years by the association will be included. Palmer Torvend, Washington County extension agent who has been in direct charge of the program, will give the report.

Speakers scheduled for the morning of Oct. 24, include W. R. Allstetter, National Plant Food Institute; G. W. Perry, vice president, First National Bank of Oregon; and Herbert L. West, Inland Empire Waterways Assn.

The annual golf tournament will take place in the afternoon on Oct. 24.

The annual banquet, preceded by the Allied Trades cocktail party, will be held on the evening of Oct. 24.



Dr. Robert D. Munson

Dr. Robert D. Munson New API Midwest Agronomist

LAFAYETTE, IND.—Dr. Robert D. Munson, formerly in charge of the Tennessee Valley Authority's fertility-economic research projects, has joined the American Potash Institute as an agronomist for the Institute's Midwest territory. The announcement was made by Dr. H. B. Mann, president of the Institute in Washington, and Dr. Werner L. Nelson, Midwest manager.

Dr. Munson will work out of St. Paul, Minn., serving Wisconsin, Minnesota, and North and South Dakota. He is an experienced farmer, teacher, and research scientist, specializing in economics-of-fertilizer use research.

Raised on the family farm at Baudette, Minn., Dr. Munson is a 1951 graduate of the University of Minnesota. He worked for a year as Veterans Vocational Agricultural training instructor in Pelican Rapids, Minn.

In 1954, he earned his M.S. in soil fertility from Iowa State College, in 1957 his Ph.D. in soil fertility from the same institution, with a first minor in agricultural economics.

NPFI Grants Undergrad Scholarship at Clemson

WASHINGTON—An undergraduate agronomy scholarship has been established at Clemson Agricultural College in South Carolina, it was announced recently by Dr. G. H. Collings, head of the Department of Agronomy at Clemson and by Dr. Samuel L. Tisdale, Southeastern regional director for the National Plant Food Institute.

The scholarship, which will consist of a \$200 cash award, a plaque and a key engraved with the name of the recipient, will be awarded each year to a rising senior majoring in the field of agronomy. The selection will be based on scholastic attainment, extra-curricular activities, and the promise which the recipient holds for future contributions to the field of agriculture.

Selection of the student will be made by a committee of faculty members.

The establishment of the undergraduate scholarship at Clemson brings to four the number of such awards that the Institute is now making in Southeastern states. These awards have been made in the past in the states of Alabama, Mississippi and North Carolina.

GARDENER OF THE YEAR

NEW YORK—Mrs. C. L. Collins, Sr., of Sylacauga, Ala., recently was named national "Gardener of the Year" for 1958 as a result of a nation-wide contest conducted through U.S. garden clubs. The amateur contest was sponsored by Union Carbide Corp., maker of "Eveready" garden products.

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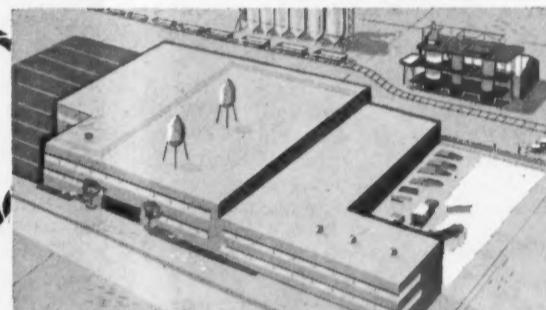
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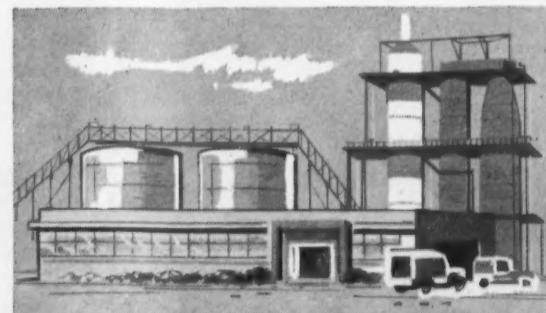
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FERTILIZER USE

(Continued from page 1)

of the primary nutrient rates per fertilized acre are depicted in Figures 1, 2, 3, and 4.

Fertilizer use on wheat is lowest in dryland farming areas and highest in the humid region and the western irrigated areas. The Great Plains, which have over 60% of the Nation's wheat acreage, consumed only 12% of the total fertilizer tonnage applied on wheat in 1954. Conversely, the wheat belt extending across the humid region states of Missouri, Illinois, Indiana, Ohio, and Michigan has only about 12% of the wheat acreage but consumes 60% of the fertilizer tonnage.

In major spring wheat producing states of the Northern Great Plains, about 10% of the acreage is fertilized in North Dakota, 8% in Montana,

and 1% in South Dakota. The percentage of the acreage fertilized in the hard winter wheat areas of the Central Great Plains decreases from a high of 28% in parts of central Kansas where moisture is more plentiful, to zero in the Texas Panhandle.

In the Pacific Northwest, mainly the Columbia River Basin, where both spring and winter wheats are grown, the percentage of the acreage fertilized is considerably higher than on the Great Plains. For example, in the Palouse area in the eastern portion of the Columbia Basin where moisture is adequate, 38% of the acreage is fertilized in Idaho and 65% in Washington. In the western portion of the Columbia Basin where the climate is drier, about 27% is fertilized without irrigation and 79% with irrigation.

The percentage of the acreage fertilized where both irrigated and non-

FIGURE 1—The percent of harvested acreage fertilized for wheat during 1954.

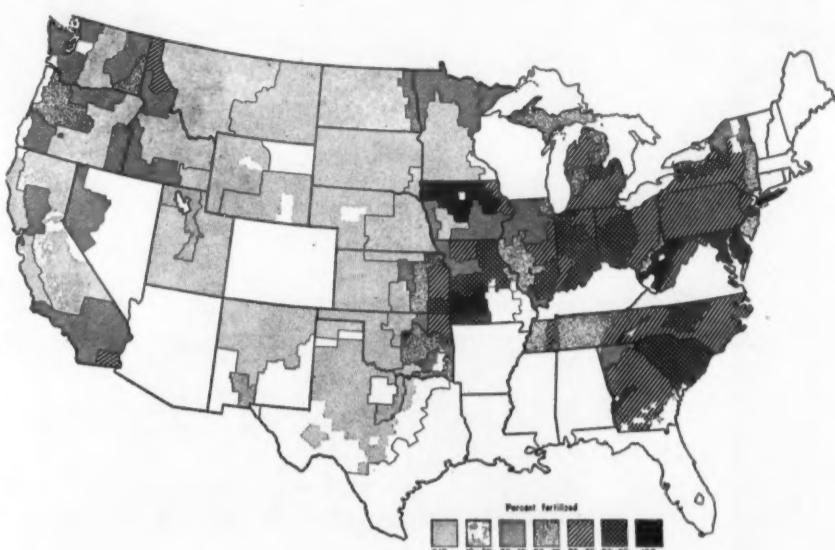


FIGURE 2—The estimated rates of N used per fertilized acre for wheat during 1954.

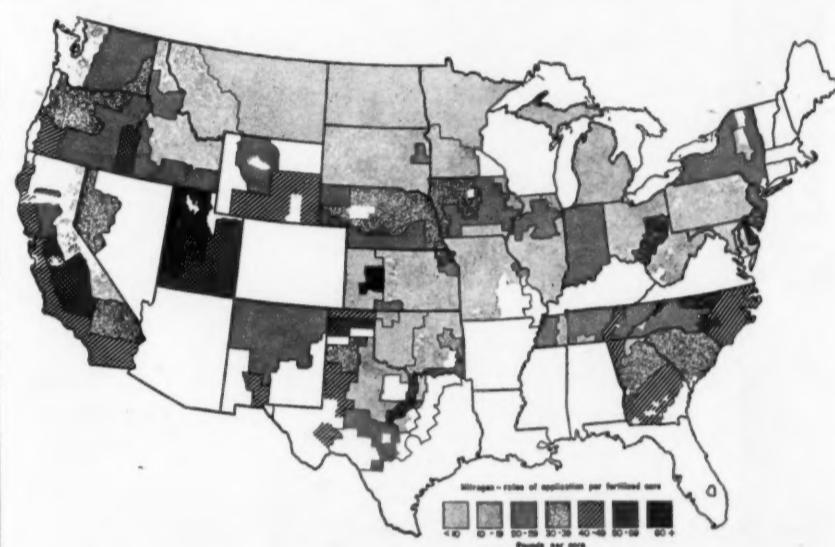


FIGURE 3—The estimated rates of available P₂O₅ used per fertilized acre for wheat during 1954.

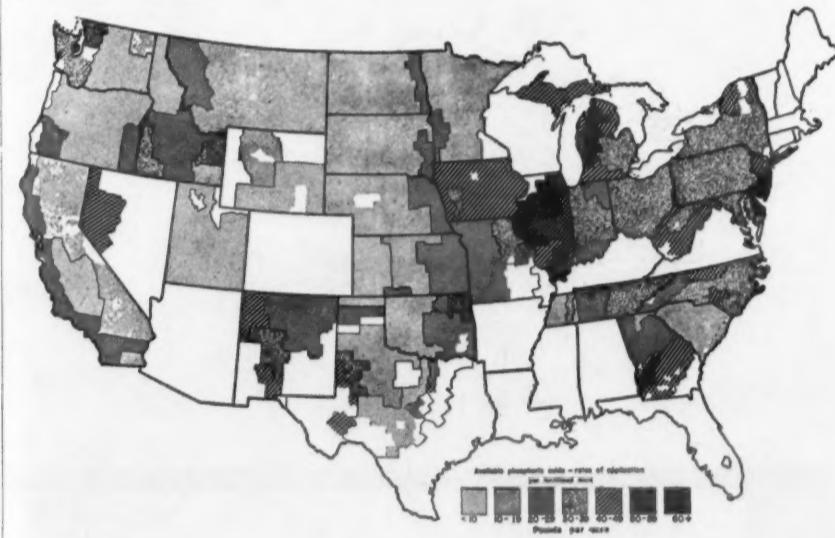
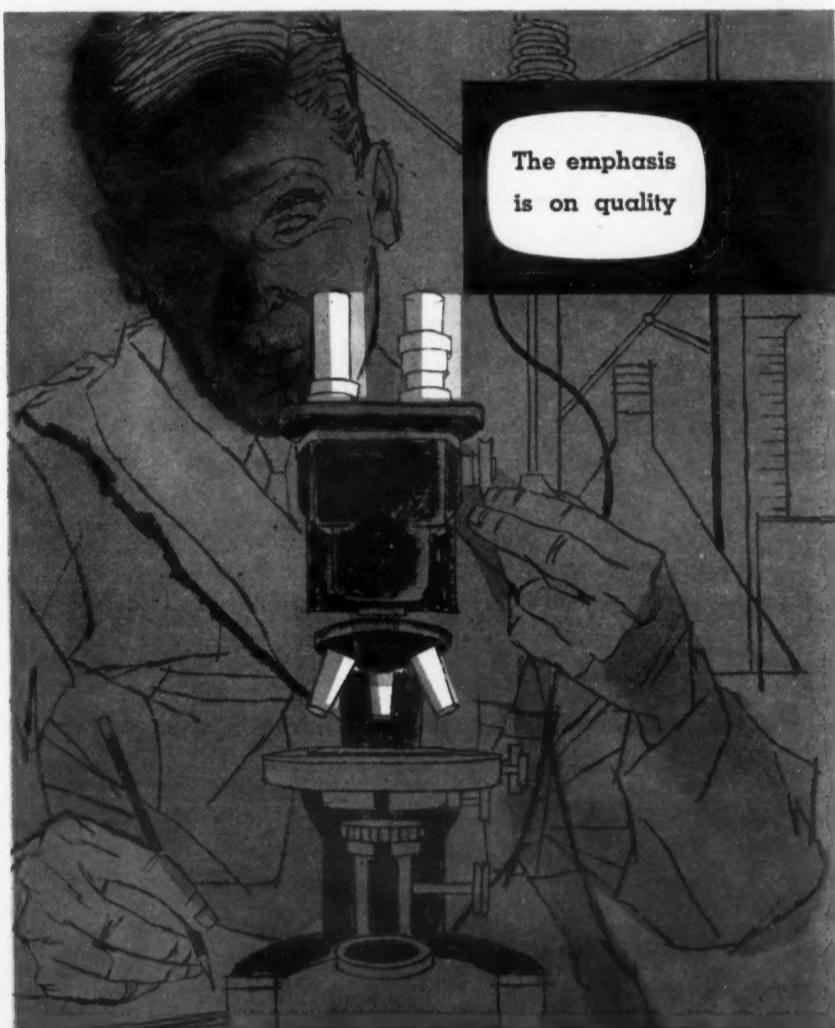
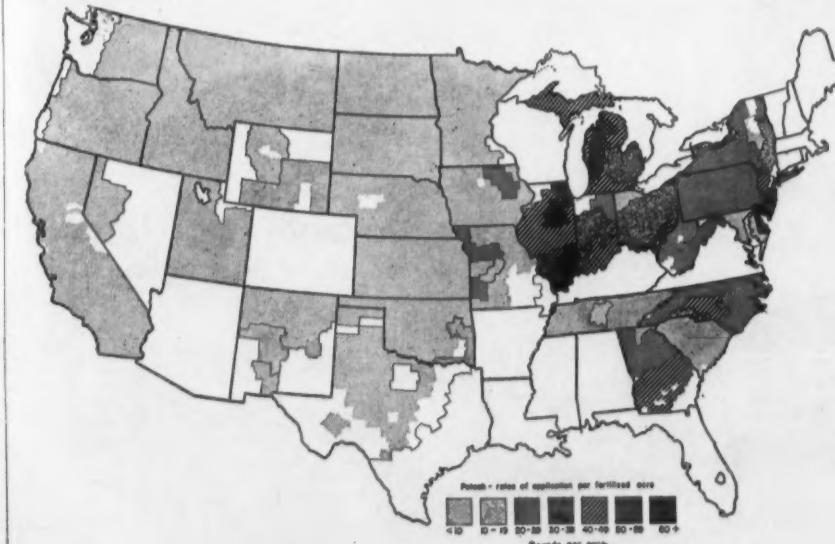


FIGURE 4—The estimated rates of K₂O used per fertilized acre for wheat during 1954.



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irrigated wheat is grown in the same area is usually greater in the lower rainfall than in the higher rainfall areas of the West. This reflects the high percentage of the irrigated acres fertilized. Seventy percent or more of the acreage in most of the major wheat growing areas of the humid region in the eastern states receive fertilizer.

In a few instances, the percentage of the fertilized acreage varies according to the kind of soil but not to the extent encountered with corn. The close relationship between percentage fertilized and soils is particularly apparent in Iowa. However, only 107,000 acres of wheat were harvested there.

Rates of N per fertilized acre generally are highest in irrigated areas of the Plains, Mountain, and Pacific States. The Southeast generally uses higher N rates than those encountered in most other humid region states. On the sandstone and shale soils of the Allegheny-Cumberland Plateau in eastern Ohio an average rate of 30 lb. N is applied per fertilized acre.

This is about double the rate used in the remainder of the state. Coastal Plain soils in North Carolina and Georgia also receive somewhat higher rates than do the adjacent Piedmont soils. The lowest N rates are generally found in the dryland farming areas in the more arid portions of the Great Plains.

The average rates of P₂O₅ per fer-

tilized acre are highest in Illinois with 55 lb., followed in turn by New Jersey with 52, Delaware 50, Nevada 47, West Virginia 43, Iowa 42, Michigan 40, and Georgia 34. Rates vary somewhat within states apparently reflecting the level of available phosphorus in the soil, although the rate patterns change markedly with state lines.

Rates of K₂O on wheat are negligible over much of the western two-thirds of the United States as a result of the adequate levels of available potassium in most of the soils. High rates of K₂O are confined almost entirely to the states east of the Mississippi River. Illinois used 56 lb. to the fertilized acre, followed by New Jersey with 52, Delaware 50, Michigan 40, and Indiana with 37. Within the humid areas where most of the potash is used, differences in the estimated rates applied are not readily identified with differences in kind of soil or type of farming.

References

- (1) Adams, J. R., Nelson, L. B., and Ibach, D. B. 1958. Crop-Use Patterns of Fertilizer in the U.S., 1954. II. All Crops and Cropland Pasture. *Croplife* 5. (In press).
- (2) Ibach, D. B., Adams, J. R., and Markezon, C. B. 1957. Fertilizer Used on Crops and Pasture in the U.S. 1954 Estimates. U.S. Dept. Agr., Statist. Bul. 216, 55 pp., illus.

Table 1. Estimated use of fertilizers on wheat in different regions of the United States during 1947, 1950, and 1954 (2)

Regions	Acreage fertilized ^{1/}			Average rate per acre fertilized														
				Nitrogen			Available phosphoric oxide			Potash			1947	1950	1954	1947	1950	1954
	1947	1950	1954	1947	1950	1954	1947	1950	1954	1947	1950	1954	1947	1950	1954	1947	1950	1954
---Percent---																		
Northeast	75	90	89	9	10	17	37	46	38	18	21	18						
Corn Belt and Lake States	79	76	78	4	6	16	25	33	37	13	19	36						
Appalachian	79	76	71	9	12	26	29	33	40	13	16	30						
Southeast	87	88	82	14	16	34	16	18	21	11	15	21						
Delta	--	98	--	--	33	--	--	26	--	--	13	--						
Southern Plains	6	6	10	5	5	11	21	22	17	<1	--	1						
Northern Plains	5	10	14	1	9	14	18	20	20	1	2	1						
Mountain	1	2	11	4	17	13	27	25	15	1	--	<1						
Pacific	6	3	43	21	26	32	3	--	2	--	--	<1						
United States	18	22	28	5	8	18	25	30	27	11	14	19						

^{1/} Planted acreage was used as a basis for calculating the percentage of the acreage fertilized in 1947 and 1950 and harvested acreage in 1954.

Table 2. Wheat: Acreage harvested and percent fertilized, and estimated use of fertilizer and primary plant nutrients, by States, 1954.

State	Total acres harvested ^{1/}	Harvested acres fertilized ^{2/}	Fertilizer applied ^{1/}	Rate of application of nutrients per fertilized acre (2)		
				Nitrogen	Available phosphoric oxide	Potash
California	1,000 acres	Percent	1,000 tons	Pounds		
Delaware	459	22	11.5	37	15	1
Georgia	33	90	7.4	35	50	50
Idaho	113	72	20.2	37	34	32
Illinois	1,155	24	16.2	21	16	<1
Indiana	1,528	71	190.6	12	55	56
Iowa	1,296	92	180.3	25	34	37
Kansas	107	43	4.0	29	42	3
Maryland	9,483	21	102.5	16	21	2
Michigan	186	92	30.3	21	34	19
Minnesota	998	83	115.8	12	40	40
Missouri ^{3/}	686	31	9.1	7	14	0
Missouri ^{3/}	1,151	84	114.5	15	26	18
Montana	4,270	8	7.9	3	16	0
Nebraska	2,972	13	21.4	24	14	<1
Nevada	11	32	.3	37	47	3
New Jersey	56	83	11.9	26	28	5
New Mexico	107	1	<.1	26	28	5
New York	336	88	59.8	21	36	29
North Carolina	292	85	---	28	36	29
North Dakota	7,583	10	18.2	3	20	<1
Ohio	1,696	91	233.7	17	35	35
Oklahoma	4,467	16	34.6	10	17	2
Oregon	857	13	15.7	34	1	0
Pennsylvania	657	88	95.4	11	35	27
South Carolina	140	90	19.1	32	13	14
South Dakota	2,595	1	1.2	12	14	0
Tennessee	193	66	18.5	24	29	11
Texas	3,022	1	.8	29	15	0
Utah	343	7	2.3	65	0	0
Washington	2,170	48	37.8	30	1	<1
West Virginia	144	84	6.9	14	43	22
Wyoming	238	1	---	2/ 27	24	0

^{1/} Estimates based on data from Soil and Water Conservation Research Division, U. S. Department of Agriculture.

^{2/} Revised.

^{3/} Does not include data for 30 Counties in S. E. Missouri.

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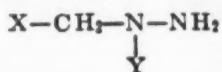


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Industry Patents and Trademarks

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Fungicidal Composition Comprising an Aromatic Hydrazine. Patent issued to Van R. Gaertner, Dayton, Ohio, assignor to Monsanto Chemical Co., St. Louis, Mo. An agricultural fungicide comprising water, an emulsifying agent, and a fungicidal quantity of a compound selected from the class consisting of hydrazines having the formula



in which X and Y are hydrocarbon radicals containing an aromatic nucleus, are free of acetylenic and olefinic unsaturation and have from 6 to 12 carbon atoms, and salts of said hydrazine compounds.

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velopment of rust on wheat which comprises applying to the wheat a rust inhibiting quantity of an eradicator composition comprising 1-benzyl-1-phenylhydrazine hydrochloride as the essential effective ingredient.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

Design, featuring letter "V", for fungicides, bactericides and insecticides and chemical additives therefor, as well as for other uses in industrial chemical applications. Filed

May 2, 1957, by R. T. Vanderbilt Co., New York. First use December, 1926.

Niagara, in hand-lettered design within red oval, for insecticides, fungicides, herbicides and rodenticides. Filed May 24, 1957, by Food Machinery & Chemical Corp., New York.

Dynatox, in hand-lettered capitals, for insecticides and agricultural fungicides. Filed Aug. 12, 1957, by Hayes-Sammons Chemical Co., Mission, Texas. First use in May, 1955.

Moly-Gro, in capital letters, for molybdenum-containing compounds used for seed treatment, as a foliar spray, as a fertilizer additive and for similar related uses. Filed June 16, 1958, by American Metal Climax, Inc., New York. First use June 4, 1958.

Singing Hills, in capital letters, for peat moss used as a soil conditioner. Filed June 23, 1958, by Bonnie Brands, Inc., New York. First use June 16, 1958.

California Agricultural Forum to Hear Discussions On Pest Control Problems

BAKERSFIELD, CAL.—The Central California Agricultural Forum, with speakers scheduled to discuss problems of pest control, is being held at the Hacienda Motel here Tuesday, Sept. 16.

The advance program called for the following speakers and their subjects:

"Explanation of the New Clean Grain Bill" by Orval Vaughn, California state department of plant quarantine; "Weed Control in Grain as Affected by the Clean Grain Bill," by Walter Ball, state department of weed and rodent control; "Research Summary of the 1958 Cotton Season," by Tom Leigh, cotton entomologist, Shafter, Cal.; and "Insect Resistance from a World-Wide Point of View," by Dr. Robert Metcalf, chairman of the department of entomology, Citrus Experiment Station, Riverside, Cal.

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Sohio's fleet of modern tank cars highball down a network of 5 different rail lines . . . write a super-speed delivery story in every corner of Sohio land. This strategic location and up-to-the-minute equipment make Sohio a specialist in quick-time delivery of nitrogen products.

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Or if you take delivery by truck, Sohio's fleet rolls on call, arrives on time . . . trucks are self-unloaded and the Sohio trained driver can handle the hook-up and unloading alone.

See the man from Sohio first for high quality anhydrous ammonia—aqua ammonia—coated 45% or uncoated 46% urea—18 nitrogen solutions, including all urea types.

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SOHIO



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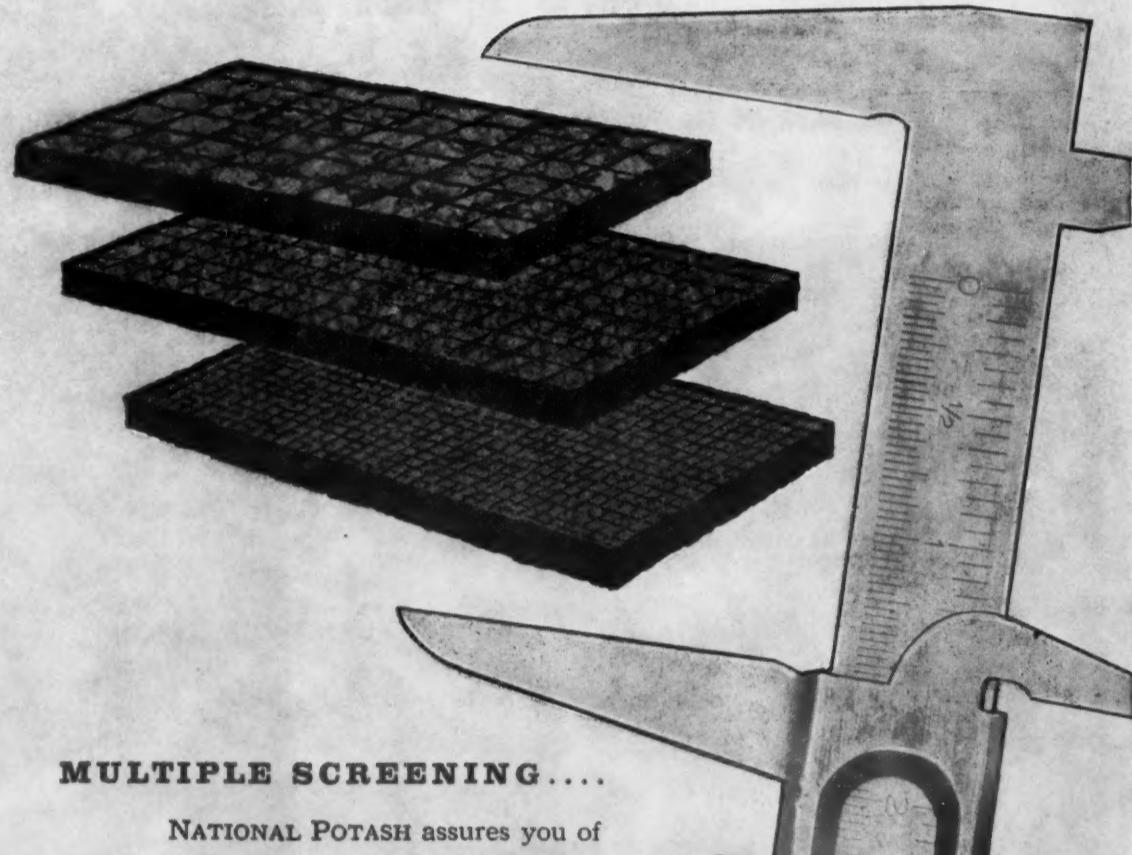
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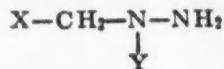
Toronto—General

—General Supply Co.,

Industry Patents and Trademarks

2,850,425

Fungicidal Composition Comprising an Aromatic Hydrazine. Patent issued to Van R. Gaertner, Dayton, Ohio, assignor to Monsanto Chemical Co., St. Louis, Mo. An agricultural fungicide comprising water, an emulsifying agent, and a fungicidal quantity of a compound selected from the class consisting of hydrazines having the formula



in which X and Y are hydrocarbon radicals containing an aromatic nucleus, are free of acetylenic and olefinic unsaturation and have from 6 to 12 carbon atoms, and salts of said hydrazine compounds.

The method of inhibiting the de-

velopment of rust on wheat which comprises applying to the wheat a rust inhibiting quantity of an eradicant composition comprising 1-benzyl-1-phenylhydrazine hydrochloride as the essential effective ingredient.

Industry Trade Marks

The following trade marks were published in the Official Gazette of the U.S. Patent Office in compliance with section 12 (a) of the Trademark Act of 1946. Notice of opposition under section 13 may be filed within 30 days of publication in the Gazette. (See Rules 20.1 to 20.5.) As provided by Section 31 of the act, a fee of \$25 must accompany each notice of opposition.

Design, featuring letter "V", for fungicides, bactericides and insecticides and chemical additives therefor, as well as for other uses in industrial chemical applications. Filed

May 2, 1957, by R. T. Vanderbilt Co., New York. First use December, 1926.

Niagara, in hand-lettered design within red oval, for insecticides, fungicides, herbicides and rodenticides. Filed May 24, 1957, by Food Machinery & Chemical Corp., New York.

Dynatox, in hand-lettered capitals, for insecticides and agricultural fungicides. Filed Aug. 12, 1957, by Hayes-Sammons Chemical Co., Mission, Texas. First use in May, 1955.

Moly-Gro, in capital letters, for molybdenum-containing compounds used for seed treatment, as a foliar spray, as a fertilizer additive and for similar related uses. Filed June 16, 1958, by American Metal Climax, Inc., New York. First use June 4, 1958.

Singing Hills, in capital letters, for peat moss used as a soil conditioner. Filed June 23, 1958, by Bonnie Brands, Inc., New York. First use June 16, 1958.

California Agricultural Forum to Hear Discussions On Pest Control Problems

BAKERSFIELD, CAL.—The Central California Agricultural Forum, with speakers scheduled to discuss problems of pest control, is being held at the Hacienda Motel here Tuesday, Sept. 16.

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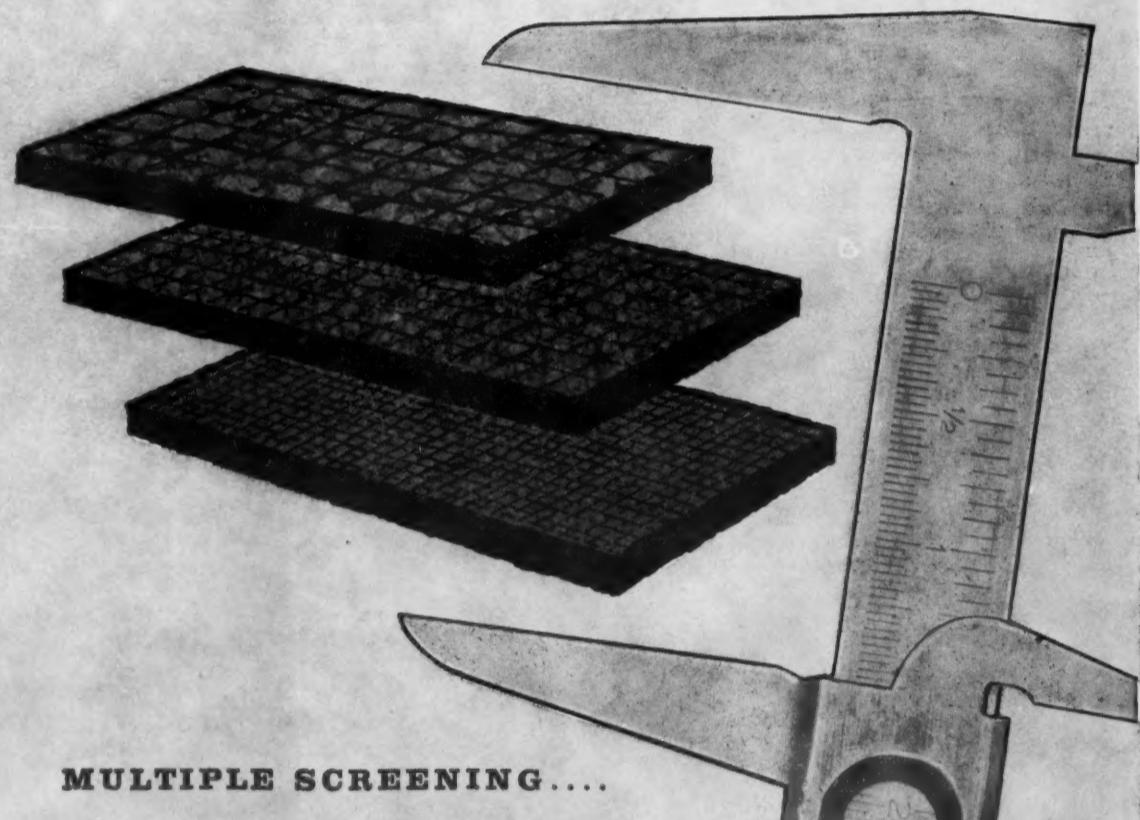
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INSECT AND PLANT DISEASE NOTES

Arizona Caterpillars Cause Damage to Cotton Fields

PHOENIX, ARIZ.—The Agriculture and Horticulture Commission of Arizona ruled that no stub cotton will be allowed in the state during 1959. Plow-up date for the quarantined areas in Maricopa County has been set for Jan. 20, while the plow-up date for Cochise, Graham, Greenlee and part of Pima counties has been set for Feb. 15.

Perforators, salt marsh caterpillars, bollworms, stink bugs and beet armyworms are causing damage to cotton in some parts of the state. Lygus continue to bother in the Yuma area.

In Maricopa County salt marsh caterpillar counts, as a whole, are

down. In a few fields the counts are very high, but generally, good controls are being secured. Leaf perforators continue to be very high in many fields, and stink bugs, along with bollworms, continue to be a menace. In all parts of the county perforator numbers seem to be very high and causing the greatest injury. In the Litchfield-Beardsley, Scottsdale-Mesa, Buckeye-Palo Verde, and Chandler-Queen Creek areas, bollworms are causing the greatest injury.

Bottom defoliation in Yuma is almost complete. The insect picture shows perforators, bollworms, salt marsh caterpillars and Lygus doing a great deal of damage. In some fields Lygus counts run as high as 50 per 100 sweeps. In the Yuma area

blooming by the middle of September should make open bolls by frost. Therefore, control of Lygus is imperative.

Perforators, bollworms and salt marsh caterpillars are causing the greatest damage in Pima County.

Bollworms and stink bugs in Graham County are causing the greatest damage.—J. N. Roney.

Insect Pests Cause Damage To Alfalfa in Colorado

FT. COLLINS, COLO.—Insect pests are causing considerable damage in alfalfa fields, according to the Colorado insect detection committee.

The heaviest infestation was in Mesa County where spotted alfalfa aphids were taken at the rate of 3,000 per 100 sweeps. In Delta, Montrose and Garfield counties the average is between 10 and 30 per 100 sweeps.

Surveys in Adams and Weld coun-

ties show the spotted alfalfa aphid varies from 40 to 100 per 100 sweeps.

The pea aphid is also present in considerable numbers in alfalfa fields. Again, Mesa County has the heaviest infestation, with surveys showing between 500 and 1,000 per 100 sweeps.

The variegated cutworm is causing extensive damage to alfalfa in southeast Weld County. The average is 70 per 100 sweeps.

Corn-damaging insects are active in northern Colorado and the Arkansas Valley. Populations of the two-spotted spider mite are increasing in some areas of Weld, Adams and Larimer counties. The corn earworm in the same counties averages between 3 and 5 per 10 ears.

In the Arkansas Valley, surveys show the corn earworm averages between 5 and 10 per 10 ears.

In Weld County potato fields the variegated cutworm is causing considerable damage to foliage. The count is 5 to 10 per potato plant.

Montrose County reports increasing populations of the tuber flea beetle in potato fields. The average is 200 to 300 per 100 sweeps, the committee concluded.

Cotton Pests Persist in Tennessee Fields

KNOXVILLE, TENN.—Cotton continues to mature all over the area with picking going on in many of the older fields. Some boll rot can be found in rank fields. Some fields are still producing squares. Rains have caused some second growth. Dry weather is needed to mature cotton. (Sept. 8)

Boll weevil migration continues from cutting out cotton to fields that are continuing to put on squares. Considerable small boll damage can be expected on bolls less than two weeks old unless infestations are controlled. Many fields are past the damage stage while others stand a chance of top crop boll loss. Ground control operations are difficult due to rank cotton.

No resistance to the regularly used insecticides has been found this season. Migrating weevils are harder to bring under control at this time of year but the commonly used insecticides will give control if the right dosage is used at the proper time. Survey was confined to the heavier infested portion of the state where the average of punctured squares was 54%. The average for last week was 48%. Inspection in some of the regularly checked fields was discontinued this week as practically all of the squares were punctured.

Boll worm moths continue to be active this week. Egg counts ranged from 0 to 16 per hundred terminals. Spider mites have matured many fields with less damage in late cotton. Predators are more numerous than any time this season.

Aphid infestations are heavier in succulent cotton. Some control is needed to prevent lint injury in many fields.

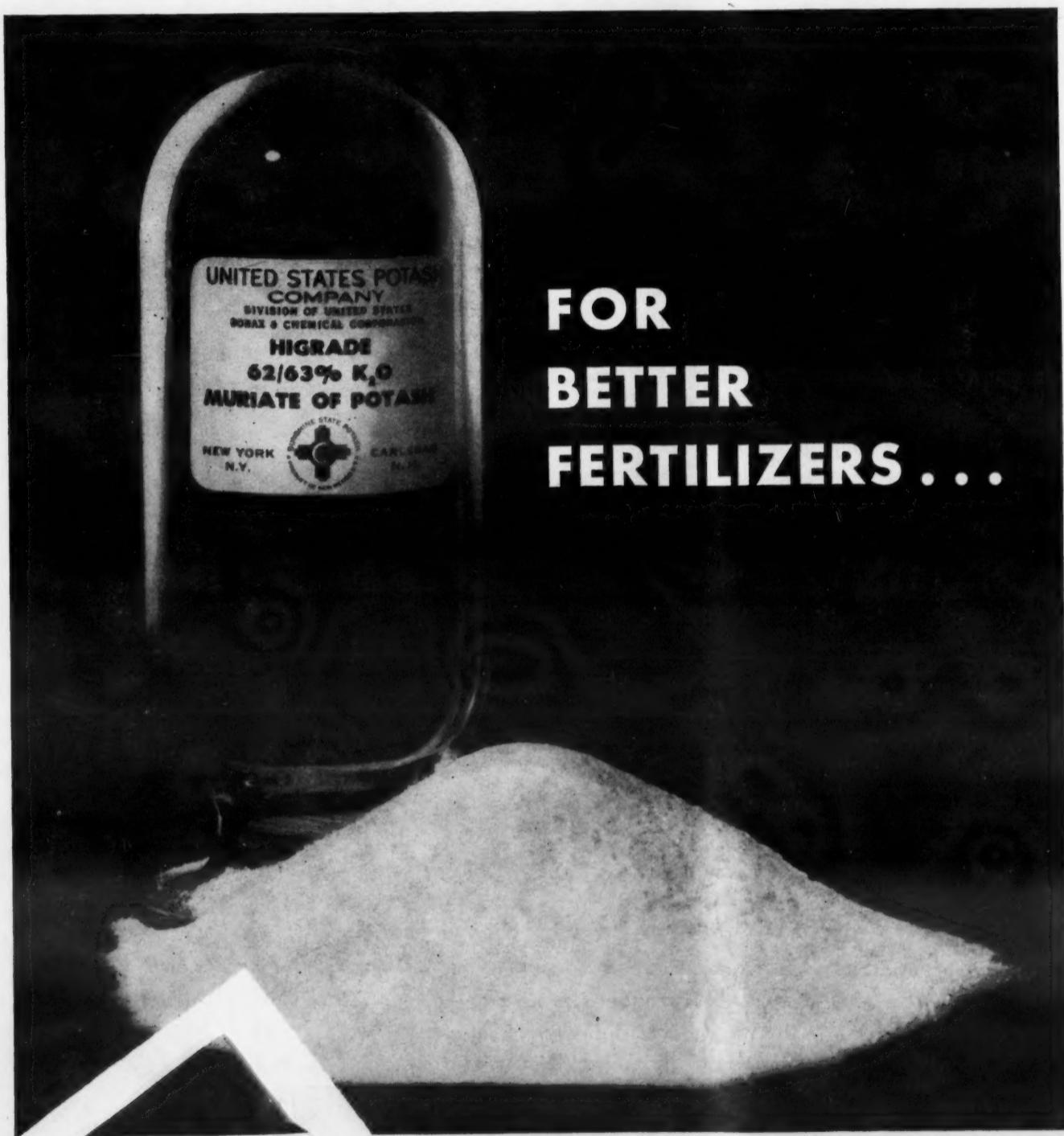
The cotton square borer has been found in Hardin County. This insect was also found feeding on lima beans in McNairy County, but only light damage has been found anywhere as yet.

Garden webworms caused some widely scattered damage.

The tarnished plant bug is causing some square shed in fields not treated for weevils. Damage is from light to moderate.

A wilt, probably fusarium, was very severe in one field of cotton in McNairy County. Verticillium wilt is more serious than in several years.

Leafworms have been present in west Tennessee for a few weeks. Controls were needed in a few places.—R. P. Mullett.



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FERTILIZERS...**

USP'S HIGRADE MURIATE OF POTASH

USP's Higrade muriate of potash (62/63% K₂O)—perfect for the manufacture of modern fertilizers. This superior white potash is non-caking and free-flowing throughout.

Our Technical Service Department stands ready to answer inquiries.

UNITED STATES POTASH COMPANY
DIVISION OF UNITED STATES BORAX & CHEMICAL CORPORATION
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Southern Sales Office: Rhodes-Haverty Building, Atlanta, Georgia

USP also offers Higrade Granular muriate of potash—62/63% K₂O—and Granular muriate of potash—60% K₂O—both free-flowing and non-caking.



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Fisons, Ltd., Marketing Chemicals in Canada

TORONTO, ONT.—A number of new agricultural chemicals are being introduced into Canada by Fisons, Ltd., a group of chemical companies in the U.K. Fisons (Canada), Ltd., a wholly-owned subsidiary, was recently incorporated here to act as a sales office.

Since 1934, some products of Fisons, Ltd., have been marketed in Canada by International Fertilizers, Ltd., Quebec. This company will now act as one of the distributors of the new Canadian subsidiary.

Fisons, Ltd., has had a sales representative in Canada for the last year, selling the company's products in Canada.

Arkansas Fertilizer Sales Show Increase Over 1957

LITTLE ROCK, ARK.—Fertilizer sales in Arkansas during July, 1958, were slightly above sales for the similar month last year, the Arkansas State Plant Board reported. Grand total sales were 20,611 tons compared with 20,457 tons for July, 1957.

Material sales totaled 17,031 tons; urea being the most popular with 5,626 tons being sold. Ammonium nitrate was the second highest seller, with 2,556 tons, followed closely by anhydrous ammonia with 2,527 tons.

Muriate of potash sold 416 tons and triple superphosphate showed 278 tons sold.

Mixed fertilizer, with a total of 3,580 tons being sold, showed 0-24-24 grade to be the most popular with 954 tons. Second highest grade was 5-10-5 with 548 tons.

For the fiscal year 1957-58 the total tonnage was 289,641 as compared to 325,150 tons for the 1956-57 fiscal year.

Alabama Fertilizer Sales Register July Decrease

MONTGOMERY, ALA.—July, 1958 fertilizer sales for Alabama dropped approximately 2,991 tons from the total sales for July, 1957 the Alabama Department of Agriculture and Industries disclosed.

Total tonnage sold this July was 14,161 tons compared with 17,152 for July of last year.

Most popular material was nitrate of soda with 2,144 tons being sold. Grade 4-10-7 sold 2,017 tons and grade 4-12-12 sold 1,427 tons. Ammonium nitrate showed 1,805 tons sold.

Total tonnage October, 1957 through July, 1958 was 844,270 tons, as compared to 927,333 tons for the October, 1956 through July, 1957 period.

Oregon Garden Clinic

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The merchandising clinic will feature one additional speaker on the subject of population increases and their relationship to sales and merchandising. The clinic will offer a new idea this year when it presents a brainstorming session, designed to provide garden supply dealers with an opportunity to participate in the type of creative thinking which American business is using more and more to solve its problems.

MICHIGAN CHEMICAL SALES UP

SAINT LOUIS, MICH.—For the six months ended June 30, 1958, Michigan Chemical Corp. reported net profit after taxes of \$232,053 or \$0.32 a share as compared with net profit of \$347,295 or \$0.48 a share for the comparable period of 1957, based on the 720,665 shares outstanding at June 30, 1958.

Net sales for the first half of 1958

were \$5,421,050 and \$4,285,182 in the same period of 1957. Net earnings for the second quarter of 1958 were \$112,954, however, against \$174,777 for the second quarter in 1957. Sales for the second quarter were \$2,638,242 in 1958 and \$2,269,685 in 1957.

GARDEN AND FARM STORE

LIVERMORE, CAL.—A new garden and farm supplies store owned

by William and Helena Rollins opened here recently. Located at 1810 W. First St., the store handles a variety of fertilizers, seed and agricultural chemicals for the farm and garden.

2-DAY LAWN PROGRAM

WOOSTER, OHIO—A program offering "something for everyone" has been set up for Lawn and Ornamental Days at the Ohio Agricultural Experiment station Sept. 23-24.

**L-42S
NEW LEADER
Mobile Blender**

Accurately Blends and Spreads Three Fertilizers At The Same Time!

Now, offer mixed analyses at low, bulk rates!

NEW LEADER Model L-14S LIME SPREADER

is a high quality rig with a low price tag!

Cut your in-the-field costs with this simple to operate, easy to maintain spreader. Merely set the feedgate opening, start the truck, engage the PTO and start spreading! Material is delivered to the twin spinners over a wide 24" conveyor. Also available with a center dump for stock piling and windrowing.

NEW LEADER Engine-driven Spreaders: Model L-52S with 24" conveyor is built for widespread use. Model L-62S with a 30" conveyor is for extra heavy, widespread lime applications. Both spreaders can also be used for fertilizer.

Model L-19S Combination Spreader With PTO Drive, 24" Conveyor and Twin Spinners Delivers Fast, Uniform Spreads!

Simple operation saves time and upkeep. Just set the feedgate opening...start the truck engine...engage the PTO...start spreading! The body has 45° angle sides to prevent bridging—heavily reinforced to stop warp and twist—extended 6" higher to hold bigger payloads with less blowing.

NEW LEADER Engine-driven Combination Spreaders are also available: Model L-22S with a 7.0 h.p. engine and Model L-32S with a 12.5 h.p. engine to deliver plenty of power for heavy applications of lime or fertilizer.

Ask Your Nearest NEW LEADER Distributor for a Demonstration!

**ALA., Birmingham and Prichard—
G. C. Phillips Tractor Co.**
ARK., Ft. Smith and Springdale—Truck Equip. Co.
LITTLE Rock and Eldorado—Southern Equip. Co.
COLO., Denver—Madron Mfg. Co.
DEL., Harrington—Bohr Spreader Service, Inc.
FLA., Lakeland—Henry W. Conibear
GA., Atlanta—Brooker Truck Equip. Co.
ILL., Peoria—Truck Equip. Co.
IND., Elkhart—Emmett Trailer Corp.
INDIANAPOLIS—South Side Equip. Co.
Tell City—Mulzer Bros.

**Our Business Is
S-P-R-E-A-D-I-N-G-I**

- New Management • New Nationwide Service!
- New Distribution! ... means more profit for you!

IOWA, Cedar Rapids—Wendler-Kraus Equip.
Shelton—Snyder-Meylor Co.
Omaha, (NEBR.)—Badger Body Mfg. Co.
KANS., Wichita—Perfection Truck Equip.
MICH., Saginaw—Goes Seed & Equip. Co.
MISS., Jackson—A. P. Lindsey, Distributor
MO., Robertson—Koste Machinery Co., Inc.
Kansas City—Perfection Spring & Equip.
NEB., Lincoln—Agrifirst Chemical Co.
NEV., Lovelock—Lovelock Welding
N. Y., North Collins—Schmitz Sales & Serv.
New York City, Poughkeepsie and Westbury, L. I.—H. O. Penn Mach. Co.
N. C., Raleigh—O. H. Stanard
OHIO, Columbus—Schodorf Truck Body & Equip.

Write for illustrated literature.

HIGHWAY EQUIPMENT COMPANY
637 D. Ave. N. W.
Cedar Rapids, Iowa

Experiment Funds Sought By Texas Committee

LUBBOCK, TEXAS—A campaign to raise an additional \$5,000 for soil fertility studies is being undertaken by the South Plains Fertility Committee, it has been announced. This will supplement the \$9,500 already raised.

The committee, made up of farmers, chemical dealers and manufacturers, was formed to set up fertility plots in cooperation with Lubbock Experiment Station and Texas Technological College.

The committee is trying to contact every chemical dealer in this area, according to August Balzer, committee chairman. Other groups are also being asked for contributions to insure the coming year's work.

Mr. Balzer's said that more information is needed; that fertilizer

manufacturers and dealers do not have sufficient data to make proper recommendations on the needed plant nutrients.

Tests this year are being made at the Lubbock station on three different soil types—mixed land, sandy land and hard land. In addition to the station plots, other tests are being made in eight West Texas counties.

Charles Fisher, superintendent of the station, says they are using various combinations of nitrogen, phosphorus, potash and trace minerals in relationship to irrigation, previous land use and management practices.

The previous use of fertilizers has in many instances increased the yield of both cotton and grain sorghums, Mr. Fisher said. But the effectiveness of fertilizer is also related to the soil types, length of time the land has been in cultivation, amount of water applied and the organic content.

The test plots in the various counties were planted to cotton and grain sorghums. Those on the station also have these crops, but in addition there are plantings of soybeans, castor beans, sesame and grass.

The fertility program is planned as a long-range study and will be carried on several years.

TO SOUTH AMERICAN POST

MIDLAND, MICH.—Appointment of Thomas G. Johnson as manager of the Buenos Aires, Argentina, sales office was announced by Dow Chemical Inter-American, Ltd. Mr. Johnson will assist Dow Inter-American's representatives in Argentina, Bolivia, Chile, Ecuador, Paraguay, Peru and Uruguay in the sale of Dow products. Before assignment to his new position, Mr. Johnson was assistant manager of the Montevideo office in Uruguay.

West Virginia Fertilizer Sales Show Drop in First Six Months of 1958

CHARLESTON, W.VA.—Gradual decrease in the number of farms and retirement of cropland through government programs were considered reasons for the drop in fertilizer tonnage purchased by West Virginia farmers, according to J. T. Johnson, commissioner of agriculture, West Virginia Department of Agriculture.

Mr. Johnson reported a total of 59,197 tons of commercial fertilizers were bought during the January-June, 1958 period compared with 65,386 tons purchased in the first half of 1957.

Mixed fertilizers made up the bulk of purchases, the report noted, comprising 89% of the total. The mixture of 5-10-10 led all sales with 27,205 tons, followed by 3-12-6 with 3,096 tons and 0-20-20 with 3,862 tons.

Other popular mixtures included 10-10-10 with 3,117 tons, 5-10-5 with 2,175 tons and 4-12-8 with 2,105 tons.

Most popular material was 20% superphosphate with 3,472 tons sold for the six months.

Total material sold in the January-June, 1958 period was 6,513 tons, as compared to 7,134 tons for the similar period in 1957.

Mixed fertilizer totals were 52,684 tons and 58,252 tons for the January-June, 1958 and January-June, 1957 periods respectively.

Stauffer Appoints Two To Plant Manager Posts

NEW YORK—George A. Cox, Jr., has been appointed manager of Stauffer Chemical Company's agricultural chemicals plant at Houston, Texas, and Robert M. Peters has been named manager of the company's agricultural chemicals plant at Bayonne, N.J., the company announced.

Mr. Cox, who joined Stauffer in 1948, was previously manager of the company plant at Harvey, La. He attended Tulane University.

Mr. Peters, a graduate of the University of North Carolina and the graduate school at the University of Minnesota, joined the company in 1952. He was formerly manager of the Houston plant.

Spencer Chemical Reports 6.5% Drop in Fiscal Sales

KANSAS CITY, MO.—Spencer Chemical Co. experienced a 6.5% drop in over-all sales during the fiscal year ending June 30, 1958, Kenneth A. Spencer, president, reported.

Net sales for the year were \$45,148,936, compared with \$48,262,634 for 1957. Net income was \$4,038,056, equal (after preferred dividends) to \$3.09 a common share, compared with \$5,130,791 or \$4.05 a share for last year.

According to Mr. Spencer, one of the reasons for the reduced nitrogen sales was the wet weather during the spring which extended over much of the company's trade territory.

Oklahoma Fertilizer Sales For July, 1958, Reported

OKLAHOMA CITY, OKLA.—Fertilizer sales for the month of July in Oklahoma totaled 5,689 tons, the Oklahoma Department of Agriculture reported.

Ammonium phosphate 13-39-0 was the most popular with 704 tons being sold. Following closely was ammonium phosphate 16-20-0 with 695 tons and grade 10-20-10 with 586 tons.

Other popular grades included 5-10-5 with 384 tons, ammonium phosphate 16-48-0 with 321 tons and 12-24-12 with 276 tons.

Triple superphosphate sold 443 tons and normal superphosphate sold 306 tons.



For Mr. James Judah of Columbia, Missouri...

"AMMO-PHOS starter means 100-bushel corn on double-cropped land"

100 bushels of corn and 120 bushels of milo per acre after a good barley and oats silage crop—this is what Mr. Judah aims for every year... and this is what he gets.

"On both corn and milo," says Mr. Judah, "I use 100 pounds of AMMO-PHOS 6-24-24 as a starter. Later on I side dress the corn with 100 pounds of N and the milo with 70 pounds. Before planting, I plow down 100 pounds of muriate of potash."

"A Mathieson portable irrigation system insures adequate moisture, but the AMMO-

PHOS starter is the key to my program. It provides the healthy start and earlier maturity needed to make up for a late planting because of double cropping."

Whether or not you are double cropping, your corn and milo still need a good start to produce bonus yields—the vigorous start that water-soluble AMMO-PHOS, with higher percentages of immediately available plant foods, can provide. See your local Mathieson dealer for full details. Grades available for every soil condition.

AMMO-PHOS® is a trademark

**AMMO-PHOS Fertilizers . . . Anhydrous Ammonia
Pesticides . . . Irrigation Systems**

**OLIN MATHIESON CHEMICAL CORPORATION
PLANT FOOD DIVISION • LITTLE ROCK, ARKANSAS**



6097 B

Merchandising Trends in Farm Chemicals in Central U.S.

By JESS F. BLAIR
Croplife Special Writer

EDITOR'S NOTE: The accompanying article was prepared by the author to bring Croplife readers up-to-date on farm chemical merchandising trends as actually practiced in the central U.S. The author, Mr. Blair, spent several weeks traveling in states extending from Texas to South Dakota, calling on more than 40 dealers to get background information for the article.

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The number of retail outlets for farm chemicals has increased considerably in the last few years. Likewise, total sales are increasing.

This seems to hold true throughout a large part of the middle states from Texas to South Dakota and back down the eastern side of the Rocky Mountains.

The dealer who sells farm chemicals exclusively is a rare specimen. Only three were found in this central U.S. area and one of them had begun to stock planting seed and garden supplies. The other two managed small fertilizer plants and sold both retail and wholesale.

While farm chemical dealers are adding other lines, the other types of business are also stocking farm chemicals. Fertilizer, insecticides and weed killers being sold by feed stores, garden centers, cotton gins, implement dealers, hardware stores and even some service stations. One welding shop owner who repaired sprayers for farmers had added insecticides as a sideline.

When asked why they sold these products, the owners would invariably say they sold other items to farmers, so farm chemicals could be handled for a small outlay of capital and required very little extra space.

In some areas the number of dealers haven't had much effect on the volume of sales, because not much effort is being made to sell the products. More merchandise is displayed; however, and farmers have become conscious of the various products. The attitude among many store owners is that farmers can buy the products or leave them alone. Some dealers admit that they are not making a sustained effort to sell fertilizer.

One sales manager of a large firm said dealers were responsible for many of their own troubles.

"You'll find that farm chemical dealers have done the poorest job of merchandising in the entire agricultural field," the sales manager said. "They think that because their competitors are selling the same product and at the same profit margin there is no use in pushing such items."

In many stores the owner knows very little about his products. Quite often when asked about a particular product, he would read the label. In some places, the displays were neat and attractive only because the salesman had arranged them that way. Yet some of the cans and sacks had been there a long time simply because customers did most of their buying somewhere else.

In analyzing why some store owner was selling five times as much as a competitor, the same answers were repeated. Not all successful dealers operate alike, yet they have many

things in common. Some of these findings were as follows:

1. The dealer with high sales knows his products. He usually knows the plants and soils of his area, and he knows the farmer's problems. He has studied diligently, either by reading or by working with county agents, entomologists and other experts. He can usually identify any insect in his locality and he knows just what to expect from each bag of fertilizer or insecticide sold.

One successful dealer in Colorado often looks at diseased or stunted plants and then prescribes the remedy. If he is stumped, he rushes the plant over to a laboratory. This service is given free to his customer.

2. The successful dealer gives some kind of customer service. This may be in field trips, taking soil samples, but mostly it is in giving good advice.

"Three people out of every four coming in here need help," said a South Dakota dealer. "If I don't know the answer, I call one of my employees who is an expert. We get that farmer's question answered, even if I have to get on the telephone and call someone."

3. Keeping records of fields is essential in selling fertilizer. Too few dealers do this, yet all the prosperous store owners had some kind of system. In some cases, they kept maps and wrote down a year to year cropping history.

A dealer in Nebraska keeps such a record, and when a farmer comes in to talk fertilizer, this file is pulled and discussed. When the farmer says what he intends to plant, the store manager then works out the kind of fertilizer needed. This increases yield,

the dealer says, and what's equally important the farmer doesn't pay for something that is not effective.

A Wyoming dealer keeps similar records, and quite often takes them to the field with him when calling on farmers. They can sit down and work out a fertilization program; and because he knows the area so well, the dealer can almost predict the crop increase to be expected.

4. Most successful dealers do custom application or they rent applicators and spreaders. Two or three have developed profitable tie-ins with aerial crop dusters.

One such dealer lets the pilots make his store their headquarters. He bought the materials and sold to them, and he also solicited new business for them. During the summer outbreak of grasshoppers, he sold hundreds of gallons of spray by this method.

Some dealers are copying the feed mills and are placing storage tanks or bins on farms. One manager had put out 10 such tanks and gained a large increase in sales.

Since fertilizer and feed should not be placed in the same storage unit, many farmers have no place to store such materials. By placing a metal bin on the farm, the dealer can often get an early season sale. Then the farmer fills his own spreaders and uses the fertilizer as he needs it.

5. The successful dealer has a clean, orderly store. The displays are neat and attractive, the floor is clean and the walls are colorfully decorated with pictures, posters and charts. He takes advantage of all the company advertising and furnishes a few ideas of his own.

He especially watches his displays

and keeps related items close together. He also works out a floor traffic plan so that customers will be routed by certain items.

He keeps his store clean and orderly, and also watches the outside. Sidewalk displays are used effectively and changed with the seasons. He gets the jump on his competitor by anticipating the buying demands.

One Colorado dealer warns farmers of impending insect trouble over a radio program and then has the insecticides displayed on the sidewalk at the same time.

6. The successful dealer has some sort of credit plan and keeps down the losses. One genial store owner who was too good-natured for his own sake had built up a nice business, but he had \$12,000 out on credit. He started worrying too late and is having a difficult time in collecting it.

The successful dealer is not an easy mark. He gives good measure, is honest and square with his customers, but he expects to be paid for all merchandise.

7. Employee problems have been a headache to many owners. If the dealer pays a small hourly wage, he gets poor help. If he hires an expert or two, such as a college graduate in agriculture, he must increase sales to offset it.

The biggest mistake some dealers have made seems to be in keeping too many employees, in not working out a system where each one can stay busy all the time, and in being too lax in supervision.

The successful dealer seems to be a hard worker. He doesn't expect his employees to put in hours as long as his, but he does get satisfactory work from them while they are at the store. A lazy, inefficient employee often reflects the same characteristics in the owner.

Calspray Appoints Six To New Company Posts

RICHMOND, CAL.—The appointment of six men to new positions was announced here by the California Spray-Chemical Corp.

John B. Clapp, Jr., has been named agricultural branch manager for the New England states and will headquarter at the Calspray branch office in Hudson, Mass. He was previously a Calspray sales representative for 3½ years.

Appointed district agronomist was Dr. Richard K. Kirsch. Dr. Kirsch, who joined the company on June 12, will make his headquarters in the district office in Fresno, Cal.

Otto R. Vasak has been selected plant manager of the company's South Plainfield, N.J., plant. Mr. Vasak has been with Calspray for seven years and has been working in research engineering as supervisor, process engineering.

James A. Gallman has been named a sales representative in the N.E. Atlantic area. He will work out of the company's Haddonfield, N.J. office.

Another sales representative post was filled by Jack B. Baldwin. Mr. Baldwin will service the central California area, out of the branch office in Salinas, Cal.

Lauren B. McCann has been appointed assistant maintenance superintendent for Calspray under Superintendent Elwood Rounds. Mr. McCann was employed by Standard Oil of California for more than 40 years.



SHOP TALK OVER THE COUNTER

By Emmet J. Hoffman
Croplife Marketing Editor

One phase of management that persists as a problem for many dealers is credit. The subject of credit brings a frown to many a dealer.

One dealer states, "Collections could be better. I guess I just don't devote enough time to watching collections and making call backs on time." This comment is typical of far too many dealers.

Another dealer says, "The farmer has been so accustomed to getting long-term credit from dealers on open account, sometimes up to 90 days, that he takes advantage of this. Soon he expects to get credit for that period of time and without interest. The practice then becomes a habit with the farmer."

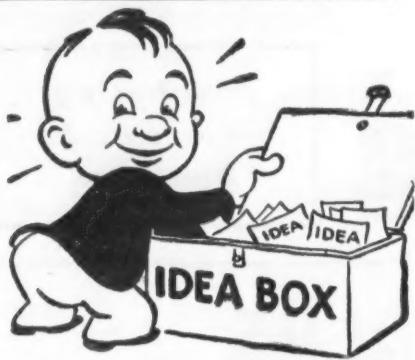
Dealers as a group should work together to cut down the length of terms offered to farmers. There are few other merchants on Main Street who extend credit so liberally and for such a long period of time as have farm suppliers in the past. The record is improving but further improvements need to be made. Bankers charge interest when they make a loan. Why is a retail businessman willing to make loans—which is actually what he is doing when he extends credit—and receive no interest for his money?

Some time ago, Dubuque, Iowa, farm supply dealers formed a credit group and part of the group's program was to run periodic ads urging farmers to keep

their credit sound by paying their bills on time.

Organizations and programs similar to the Dubuque plan are worthwhile because it makes the farmers realize that dealers expect payments promptly as other merchants do.

Other firms make use of signs prominently displaying credit terms. Without saying a word to the customer, a dealer can get the credit message across. One dealer states that a large sign which reads "6% interest charged on accounts over 30 days" had a good effect immediately after it was placed on the wall of his retail store. A number of customers paid up their bills, others signed notes for the balance owed and the amount of credit business has dropped.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 7126—Valve Bag Packer

E. D. Coddington Mfg. Co. has released information on its Air-Pac packer which fills standard valve bags of from 20 lb. to 100-lb. capacity. A built-in scale provides close weight control and shuts off packer automatically when the desired weight is reached. A company statement said the machine uses the improved fluidizing air principle of conveying material into the bag. For more information, check No. 7126 on the coupon and mail it Croplife.

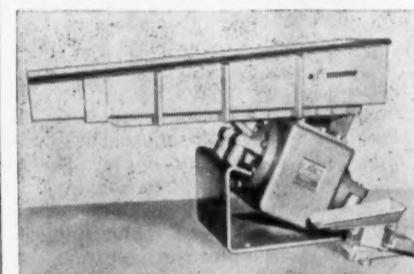
No. 7131—Flexible Loader

The Flex-Bend loader, manufactured by R. T. Sheehan Co. is described in a bulletin released by the company. Included in the loading unit are a power car, belt drive and stacker cars and as many center cars as required to make the desired length. Car dimensions are: power car, 36 in.; belt drive car, 36 in.; center car, 18 in., and stacker car, 96 in. It has four drive units, using three-phase, 220 or 440-volt power supply. Conveyor belts are 12 in. or 18 in. wide and they travel 36 in. above the floor at a speed of 120 ft. per minute. The 12-in. belt bends

horizontally on a 5-ft. inside radius and the 18-in. belt on a 6-ft. inside radius. The stacker boom will swing 180° and has an adjustable delivery height of from 18 in. to 72 in. and a belt speed of 400 ft. per minute to facilitate stacking. The bulletin can be secured by checking No. 7131 on the coupon and mailing it to Croplife.

No. 7125—Vibratory Feeder

A new vibratory feeder with capacity rated at 10 tons per hour has been added to the Eriez Manufacturing Co. line of Hi-Vi feeders. The unit is designed to handle medium to heavy feeding to batch weighing scale, hop-



pers, processing mills, pulverizers, dryers, furnaces, belt conveyors, and the like. Seven standard trays are

available in regular 16-ga. mild steel or 16 ga. Type 304 stainless steel. The units incorporate the Eriez electro-permanent magnetic drive which requires no rectifier, and they can be wired into available AC power. Full details on the new unit can be had by checking No. 7125 on the coupon and mailing it to Croplife.

No. 6802—Seed Disinfectant

A liquid suspension of thiram, for slurry treatment of seed and for use as a paint or spray repellent against rodents, rabbits, deer and birds, has been developed by the DuPont Co. Called "Arasan" 42-S seed disinfectant and protectant, the company states it is the first commercial liquid suspension of thiram and the development marks a major accomplishment in company history. For further details, check No. 6802 on the coupon and mail.

No. 6800—Movie on Food and Fiber

A film on agriculture entitled "Keep America Growing . . . Quality Food," a companion to the film "Keep America Growing . . . Quality Fruit," is being released by California Spray-Chemical Corp. The 16mm color film, which was in production for three years, was shot by Everett L. Ingraham, agricultural movie photographer. It is a report on American agriculture and shows how growers and technical field men team up to meet the growing demand for top-quality, disease- and insect-free produce. Secure details by checking No. 6800 and mailing to Croplife.

Send me information on the items marked:

- No. 6785—Crop Dusting
- No. 6790—Coding Wheel
- No. 6791—Fertilizer Bagging
- No. 6792—Adjuvant
- No. 6793—Pipe
- No. 6794—Vermiculite
- No. 6795—Rubber-lined Tanks
- No. 6798—Bag Design
- No. 6800—Food, Fiber Movie

- No. 6802—Seed Disinfectant
- No. 7116—Hydraulic Unit
- No. 7124—Batching Scale
- No. 7125—Vibratory Feeder
- No. 7126—Valve Bag Packer
- No. 7131—Flexible Loader
- No. 7143—Bag Closer
- No. 7145—Hoist Carrier
- No. 7152—Settler
- No. 7181—Steel Buildings

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COMPANY

ADDRESS

CLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL

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Reader Service Dept.

Minneapolis 1, Minn.



from thermosetting reinforced epoxy resins, producing a pipe that takes high operating pressures and temperatures, yet being 4 1/4 times lighter than steel, the company claims. Its officials state: "After several years of extensive and vigorous field tests, Fibercast was introduced in 1953 in sizes of 2 1/2 in., 2 1/4 in. and 3 1/2 in. Its successful applications in the petroleum, chemical, paper and fertilizer industries—particularly where severe corrosive conditions exist—brought about the demand for the larger 4 1/2-in. size." Secure details by checking No. 6793 on the coupon and mailing it to Croplife.

No. 6798—Fertilizer Bag Design

The Pelham Phosphate Co. recently adopted a new package design for its complete line of fertilizer products. Two packages, illustrating both the old and new designs, are shown here. The new package design shown at the right was created by Union



Bag-Camp Paper Corp. The more liberal use of color gives the new package better attention value and impact. In addition, the new design gives product and analysis information on both ends of the bag as well as in the gussets. Secure details by checking No. 6798 on the coupon.

No. 7181—Steel Buildings in Color

Complete details about a pre-engineered steel building in color, using a new vinyl-aluminum protective coating, are contained in a brochure entitled "Stran-Steel Buildings in Factory-Applied Stran-Satin Color." Buildings are being offered in color coatings of blue, green, bronze, rose gray and white, as well as in the standard metal finish. The brochure may be secured by checking No. 7181 on the coupon and mailing it to this publication.

No. 6796—Rubber-Lined Tanks

Ranging in size from 55 gal. up to 12,000 gal., rubber-lined steel tanks are now available in 15 different stock sizes for quick delivery to fertilizer users. Abrasion & Corrosion Engineering Co.—fabricators of rubber-lined steel equipment for agriculture and industry—specializes in producing fertilizer tanks of all types, including applicator tanks, skid-type nurse tanks, and storage tanks. For tank types and sizes not included in their regular stock, A & C is geared to provide custom fabrication to required specifications, with delivery to any location. Check No. 6796 on the coupon and mail to secure details.

No. 7116—"2-in-1" Hydraulic Unit

M&W Tractor Products has announced production of a portable combination speed jack and hydraulic control. The hydraulic unit with 15 ft. of high pressure hose will dump most wagon loads in less than a minute. Speed reduction for elevating and other uses is provided by a roller chain-sprocket unit delivering 3.5 to 1 reduction. Skid-mounted models are available for gasoline engine (5 to 7 1/2 h.p.), electric motor (3 h.p.) or tractor PTO power application. The hydraulic pump will deliver 2,500 lb. pressure, adequate to raise 100 to

Also Available

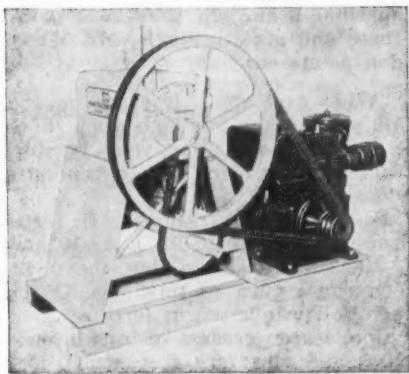
The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6791—Fertilizer Bagging, Shipping

A new bulletin covering fertilizer bagging and shipping equipment has been prepared by the K. E. Savage Co. The bulletin explains and illustrates a shipping mill for bagging large volumes of fertilizer, a sewing machine stand, horizontal and inclined belt conveyors, truck loading conveyors, and industrial design information. The bulletin may be secured by checking No. 6791 on the coupon and mailing it to Croplife.

No. 6793—Pipe

"Fibercast" line pipe and well tubing are now being produced in 4 1/4 in. O.D. size, according to an announcement by the Fibercast Corp. "Fibercast" is a non-corrosive pipe made



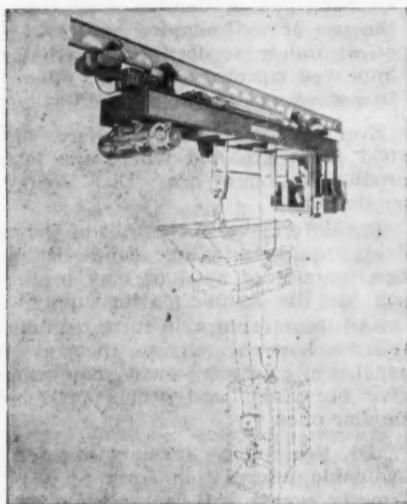
150-bu. grainloads. A positive, three-position valve controls raising, holding and lowering. Hydraulic fluid reservoir capacity is 15 qt. For more information and literature, check No. 7116 on the coupon and mail it to Croplife.

No. 6785—Crop Dusting Brochure

Transland Aircraft, division of Hi-Shear Rivet Tool Co., is making available and eight-page brochure and describes the new "Swathmaster" for crop dusting and spraying aircraft. The "Swathmaster" is claimed to be the only dispensing unit available for the aerial application of both dry and liquid materials to farm and forest lands. Fully illustrated, the brochure explains the economic advantages, flight and applying performance, suitable aircraft, how it works and installation details. A copy of the brochure may be secured by checking No. 6785 on the coupon and mailing it to Croplife.

No. 7145—Hoist Carrier

A cab-controlled twin-hook hoist carrier provided with an auxiliary hoist for dumping has been built by the Cleveland Tramrail Division, the Cleveland Crane & Engineering Co. Of weatherproof construction for outdoor service, the unit will pick up



tote boxes of materials, haul them and empty by tipping. While the carrier was especially designed for handling slag in a steel mill, it is suitable for various bulk materials. Check No. 7145 on the coupon and mail it to this publication.

No. 6792—Adjuvant Activity

A leaflet titled "Adjuvant Activity in the Agricultural Chemical Field" has been prepared by Colloidal Products Corp. The leaflet describes Kelthane (Colloidal X-77—Colloidal Z-1). Results of field investigations are presented in the leaflet. Secure it by checking No. 6792 on the coupon and mailing it to Croplife.

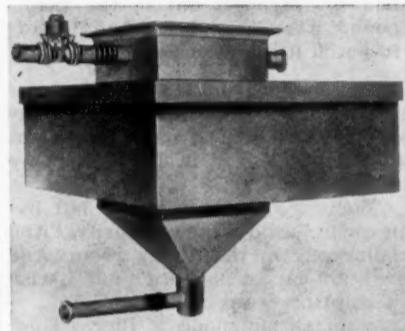
No. 6794—Vermiculite Folders

Applications and chemical and physical properties of vermiculite are presented in booklets issued recently by the Zonolite Co. The product's applications as a carrier for agricultural chemicals — insecticides, fungicides, weedicides—and as a conditioner for fertilizer are described. Con-

tents of the booklets include also vermiculite's general characteristics, particle sizes, chemical composition, pH and buffering capacity and many other similar subjects. A complete listing of uses in modern industry is also included. Check No. 6794 on the coupon and mail it to Croplife to secure the booklets.

No. 7124—Batching Scale

A constant feed-batching scale which utilizes an electronic closed circuit control has been announced by Thayer Scale Co. The company announcement said the electronic control provides dynamic accuracies without a dead spot and claims final accuracies of 0.1% for wet or dry materials being fed at rates of from 5 lb. to 5 tons per hour. No mechanical parts subject to wear are found in the control system. The closed loop system will maintain constant speed control over a long period of time, the announcement said. Feeders are available to handle viscous or lumpy material, and by substituting a controlled orifice valve for the dry feed-



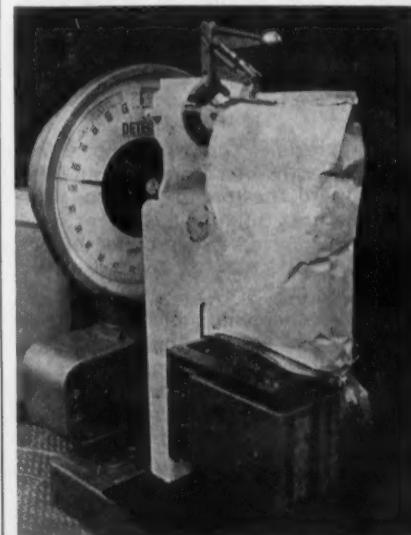
er, liquids can be weighed. For more information, check No. 7124 on the coupon and mail it to Croplife.

No. 6790—Coding Wheel

A new addition to Mill Engineering Company's line of tag dispensing and coding equipment is the "Quick Change Coding Wheel." The change is accomplished by metal code holders into which are placed the logo-type. The new coding wheel contains three holders for the metal strips, thereby making it possible to print three types of information simultaneously. The bag tagger automatically dispenses the tag into the sewing machine for each bag and the coder accessory prints code and other information on the tag simultaneously. Full information will be supplied to those interested. Check No. 6790 on the coupon and mail it.

No. 7152—Settler Packer Attachment

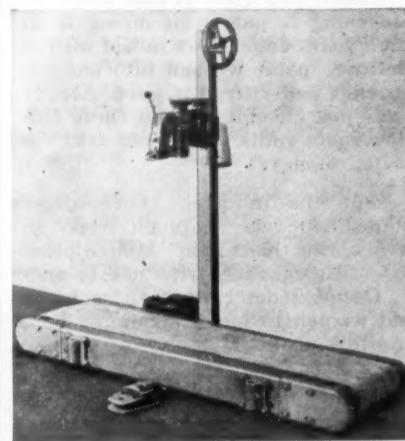
An attachment for bag packers which is designed to settle material in the bag during the entire filling cycle without affecting the weighing mechanism of the packer has been announced by the H. L. Stoker Co. The model "B" settler features adjustments to control the intensity and frequency of the settling action to meet the physical characteristics of



most packaged materials. It can be installed on all models of Stoker packers and, with slight modifications, may be adapted to most other makes of packer now in service. Further information is available by checking No. 7152 on the coupon.

No. 7143—Belt Conveyor Bag Closer

The Dave Fischbein Co. has announced the introduction of a new belt conveyor sewing unit, the "Fisch-



bein Bag Closer model B-5." The unit operates from one 110-volt light outlet. No special wiring is necessary. The two-stage switch operation is controlled by foot pressure by the operator. The first stage starts the movement of the conveyor belt to carry the bag to the sewing head, and the second stage starts the sewing operation. The machine stitches at the rate of 30 ft. per minute. Check No. 7143 on the coupon the mail to secure details.

Precise Soil Tests Under Study at U. of Arkansas

FAYETTEVILLE, ARK.—Soil scientists with the Arkansas Agricultural Experiment Station are conducting tests on cotton fields of cooperating farmers in southwestern and eastern Arkansas, to attain more precision in soil tests to indicate fertilizer needs for crops.

The tests are attempts to compare soil test results with crop response when recommended fertilizer nutrients are added, and are supervised by the soil testing and research laboratory at Fayetteville, and the Eastern Arkansas soil testing and research laboratory at Marianna.

Here are some highlights of the fertilization and soil test studies on cotton as summarized by Richard Maples and Dr. R. L. Beacher in a recent report:

Nitrogen fertilization alone increased cotton yields by 20 to nearly 700 lb. seed cotton an acre on 23 of 26 farms checked during 1953-55. The nitrogen fertilizer rates varied from 40 to 140 lb. actual nitrogen an acre.

Phosphorus fertilizer applications of 30 to 100 lb. phosphate an acre, along with nitrogen or nitrogen and potash, boosted yields by 14 to nearly 450 lb. seed cotton an acre in some fields.

Forty to 100 lb. potash spurred yield increases on 21 farms. The increase was 600 lb. seed cotton an acre at one test location.

Soil tests for pH, organic matter, available phosphorus, exchangeable potassium, and exchangeable magnesium were made on composite samples from all test sites before treatment.

Additional studies are underway to refine nutrient testing methods and their interpretation.

EXPERIMENTAL FARM

LEXINGTON, KY.—The State of Kentucky has taken possession of another parcel of 632 acres of farmland to nearly complete the purchase of the University of Kentucky's 1,150 acre experimental farm. The farm was acquired late in 1956, with the state taking title to 518 acres immediately and leasing the remainder.

Gloomicides

Prisoner to fellow inmate: "I got caught making big money—about a quarter of an inch too big."



Nothing annoys a woman so much as having her friends drop in unexpectedly to find the house looking as it usually does.



Jim planned a fishing trip with one of his neighbors, a young Chinese with the unoriginal nickname of Charlie, who, though thoroughly Americanized in everything else, was still a bit reckless with the English language.

At the last minute, however, Charlie came over to say he couldn't make it. "Something came down," he explained.

Jim chuckled. "You mean, 'came up,' Charlie?"

Charlie grinned ruefully. "No, down. Wife's foot."



The average husband knows exactly what his wife expects of him. The trouble is that he can't afford it.



A man of Scottish descent was attracting much attention in the hotel lobby with his tales of accomplishments.

"Well, now," said an Englishman at last, "suppose you tell us something you cannot do and I will undertake to do it."

"Thank ye," replied the Scot, "I canna pay my bill here."



On my list of New Year's resolutions was: "Be more patient with my son, Tom. No matter how irritating he is, remember that he is only 16 and going through an exasperating period of adolescence."

Imagine my feeling when, quite by accident, I came across Tom's New Year's resolutions and saw at the head of the list: "Try to be more patient with Dad."



Married man: One who cleans the windshield before going to a drive-in movie.



"Hello," said a woman's voice over the phone. "Is this the Missing Persons Bureau? My husband has disappeared. Can you help me find him?"

"Certainly, Madam," said the Bureau Chief. "Will you describe him?"

"Of course, thank you," said the wife. "He's short and very fat. And bald. Likes blondes and alcohol. Wears thick glasses and has a high-pitched squeaky voice with a red nose. And he—oh, the heck with him. Never mind."



The mother of a 10-year-old boy who attends one of our local progressive schools reports that her offspring came home in a very despondent mood one recent afternoon. When she asked the boy what was eating him, he replied, "The psychologist gave us a test and found out I was the only one in my class who never wanted to kill anybody."



She came in with her hat over one eye, her hair ruffled and lipstick smudged all over her face, and said she'd been out with a Frenchman. "What happened?" she was asked. "Well," she explained, "I didn't want him to know I couldn't understand a word he said, so I kept nodding my head."

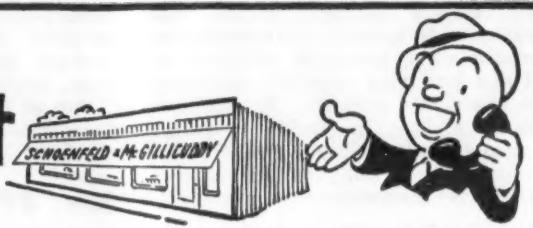


Car sickness: The feeling you get each month when the payment is due.



Doing Business With

Oscar & Pat



By AL P. NELSON
Croplife Special Writer

When Oscar Schoenfeld came home from the office that late September day, he hung up his yellowed, four-year-old straw hat on the elk head rack which stood gloweringly in the long front hall. Oscar sniffed sharply. Minnie was making sauerkraut and spareribs, his favorite dish, and somehow this odor sent a wave of vigor through Oscar.

"Ach, I feel just like spareribs and sauerkraut, Minnie," he told his wife as he went into the kitchen.

Minnie smiled quickly, nervously. She always got nervous when her husband came home, for she knew his eyes took in everything. He wanted everything in order. He went on the porch where an old kerosene stove stood. Minnie used it to cook potatoes, because her old wood-burning cookstove would heat only on two lids. The kerosene stove which Oscar had bought at a farm sale smoked badly sometimes, but it did heat quickly.

Oscar and Minnie were not two to waste time talking at mealtime. Oscar ate like he did everything else, in a businesslike way. Minnie, always ready to serve Oscar, was there with more meat, potatoes and other food at the exact instant Oscar wanted a second helping. This was the way Oscar liked it, too. He liked to be punctual and he wanted other people to be punctual, too. That's the way the world should run—in an orderly fashion. None of this "sudden idea" stuff that Pat McGillicuddy, his partner, always indulged in.

Minnie watched Oscar enjoy his spareribs and sauerkraut, his two cups of coffee, his cookies and apple strudel. She saw him wipe his lips twice and put down his paper napkin.

"Oscar," she said timidly, "could we do a little fixing up this fall before winter comes? I'm due to have the Ladies Aid in October."

"Fix up?" Oscar frowned. He looked around the dining room. "What's wrong with the house the way it is? I think it looks fine. Ach, I like it this way."

"It's the bathroom that bothers me, Oscar. Other ladies have such nice bathrooms nowadays. Our bathtub has such high legs. And when we flush the toilet we have to pull that chain from the ceiling."

"Well, what's wrong with that?" Oscar said sharply. "It works, doesn't it?"

Minnie looked wretched. "But if we watch our chance maybe we could get a used bathtub and toilet at some sale, cheap. And some new linoleum. We got two kinds on the floor now. Remember, we bought it cheap eight years ago at a salvage sale. It looks kind of funny when one goes into the bathroom and sees two kinds of linoleum on the floor."

Oscar's lips tightened. "Minnie, what has gotten into you? Ach, you know that is the way to save money, to get along with what we got and not spend a lot of money on new things."

"I know," Minnie said wearily. "But we have quite a bit saved, Oscar. Couldn't we have a few new things, or some more up to date used things? Our parlor lamp shades have those long fringes and tassels. And the wallpaper has been on more than ten years. People don't use those big bunches of grapes on wallpaper anymore." Minnie sighed. "And look at the color of paint on these dining room walls. I can't get used to it. I never saw such a dark color of blue

with streaks of yellow in some places."

Oscar began to look impatient. "Minnie, you know it didn't cost us anything to paint this dining room five years ago. I just mixed all the leftover paint we had into one big bucket and stirred it good. Ach, it was just enough to paint these dining room walls and woodwork. We saved money."

"But the minister's wife always blinks her eyes so much when she comes into this room," Minnie pleaded, "although she tries not to show it. Oscar, I don't want those Ladies Aid women to laugh about my home and talk about it."

Oscar snorted. "Now you are talking just like Pat McGillicuddy. All that Irisher can think of is to spend money for this and that. Everything we got is no good. It's got to be new, new, new. The oldt is still good enough. Let those ladies laugh. We can laugh when we see them go to the bank and look worried when they try to pay their notes. They borrow money for cars, for furniture, for appliances, for everything. We don't Ach, we got money to pay for what we buy."

"But we don't buy much," Minnie said sadly.

"Then we can save so much more," Oscar exulted. "Minnie, don't let people fool you. Look how much money everybody owes, but us. Look what the government owes. Oi, I get a headache when I think of it. Some day—somebody has got to pay all that money the government owes. It's time we stopped spending—everybody should, and begin to pay off

what Uncle Sam owes. If we don't, ach, we will have trouble."

Minnie sighed. "Oh, I suppose you are right, Oscar. You always are. But I do wish we could have a new living room rug. That old one is wearing thin in some places."

"Minnie, Minnie!" Oscar said in a shocked voice. "I never knew you were such a spender. Ach, that rug will wear another two or three years yet. I made a good buy when I got that from the Hotel Michigan in Milwaukee. Lots of people don't know you can go to the janitor there and bargain to buy oldt rugs cheap."

"Are you sure, Oscar, it was such a good buy?" Minnie said wearily. "We had to haul it here ourselves. That took gas. Then we had to spread it out in the yard, pound it and scrub it. And I had to patch it many places."

"But I only paid \$13 for it," Oscar said proudly. "And those hotels buy expensive rugs. The nap stood right up after I cleaned it. Look what we saved."

"We've got a green rug in our living room," said Minnie drearily. "And a blue one in the dining room. And the stair carpet is red. Oscar, I wish all our rugs were one color."

Again Oscar made a funny noise with his lips. "Minnie, don't talk about it. You are making me mad. Just like I get mad when that Pat talks about spending money. You know when you buy rugs second hand, you don't have your choice of color. You got to take what you can get cheap. Now go do the dishes while I read the paper. Then maybe we can turn on the TV for a half hour before we go to bed."



FARM SERVICE DATA

Extension Station Reports

Fertilizer can add some "mighty cheap acres" to many midwestern farms, said Ermond Hartmans, a University of Minnesota agricultural economist, at the annual meeting of the American Society of Agronomy in Lafayette, Ind.

To illustrate his point, Mr. Hartmans compared crop returns from a 120-acre "good yielding" farm with returns from a 180-acre "average yielding" farm, using data based on long-time Minnesota results.

For the smaller farm, Mr. Hartmans assumed a heavier fertilizer program was followed, resulting in 70-bu. corn yields, 60-bu. oat yields and three tons of alfalfa per acre. For the larger farm where less fertilizer is used, he assumed 50 bu. corn, 40 bu. oats and two tons alfalfa.

At current prices, crop labor return (income from crops less fertilizer and operating costs) from the smaller farm would be \$2,700 per year, compared with \$2,800 from the larger one. Return per hour would be \$3.70 on the 120-acre farm and only \$2.67 on the larger place. Figured another way, the farmer on the larger acreage would have 350 hours more work but make only \$100 more in crop labor return.

If the 350 hours of saved labor on

the smaller place were spent raising hogs or cattle, the farmer could raise his net income by \$500, based on long-time, conservative returns. Mr. Hartmans said comparing a similar livestock program on both farms, the 120-acre unit with good yields would have a higher income potential than the larger one with only average production.

"Besides," he added, "the more intense production is a better safeguard when prices are low. If corn dropped to 80¢ bu. there would be no profit in corn production on the average-yielding farm. The higher yielding place, though, would still make \$6 profit per acre."

Top-dressing permanent pastures this fall with fertilizers will add extra days to the grazing season, push the pastures off to a faster start early next spring and produce higher yields of good quality, low cost feed per acre.

That's the opinion of M. D. Weldon, extension agronomist at the University of Nebraska, who says fall-fertilized pastures are ready for grazing a week to 10 days earlier in the spring than unfertilized pastures.

When applied in the fall, the fertilizer is all ready to go to work as soon as spring rains and warm

sunshine wake up the grass pastures and growth starts, Mr. Weldon points out.

"When you apply fertilizer in the fall, you get the job done when there is a firm footing for your tractor, truck or spreader," the agronomist adds.

Pasture demonstrations with fertilizers such as 10-10-10, 12-12-12 and 13-13-13, have shown that the plant food can return as much as \$3 for each dollar invested in fertilizer.

Cool season grasses such as bromegrass and wheatgrass respond especially well to nitrogen, Mr. Weldon says. Soil tests will show whether phosphate, potash or lime is needed.



Elm leaf spot disease is causing many elm tree leaves to turn yellow and fall off. There is nothing that can be done now to protect the trees, but the trees may be sprayed with a Bordeaux mixture next spring as the leaves unfold, states Dr. John Weihing, extension plant pathologist at the University of Nebraska.

Dr. Weihing also reported that lilac mildew is causing many lilacs to become grayish in appearance. The mildew may be controlled by spraying with wettable sulfur. It is wise to include a common household detergent in the solution.



Costs of crop production can be cut, yields can be increased and profits per acre boosted by setting up realistic crop production goals for the different soils, said Dr. Marvin Beatty, University of Wisconsin soils specialist.

Once possible yields are figured out, the required amount of plant food needs to be put on to get those yields.

This, he says, calls for a soil test to determine what the plant nutrient needs are.

Other important steps toward reaching top production goals, are the use of well-adapted seed varieties; timely seedbed preparation; improved cultural practices; effective weed and insect control.

Every farmer knows where his good fields are and where the less productive ones are, Dr. Beatty points out.

The differences in the soils of these fields are due to texture, depth, drainage, amount of sand or clay in the soil, and the organic matter supply.

And these factors, in turn, help determine how much crops the soil is capable of producing—why some soils give big yields and others produce smaller ones.

Dr. Beatty says farmers can get valuable information from their county agents, soil conservationists assisting their soil conservation districts and from vocational agriculture teachers on how to push good soils up to higher yields and make less productive soils give more crops.

As a means of helping farmers get specific information on the soils in their particular areas and the crops best suited to those soils, a "Crop Production Potentials" program has been launched in several midwestern states, Dr. Beatty reports. Cooperating in this program are agricultural college soils specialists and the Midwest division of the National Plant Food Institute, he says.



Superphosphate drilled in the row with wheat is almost three times as efficient for increasing yields as the same material broadcast, according to Roger Bray, University of Illinois agronomist.

Results of the phosphate experiments were presented at the 51st annual meeting of the American Society of Agronomy at Purdue University.

These results compare superphos-

phosphate broadcast and then double-disked with superphosphate drilled directly with the wheat.

Besides determining the relative efficiency of the two methods, the experiments will make it possible to set up accurate tables showing how much soluble phosphate is required for soils having different phosphate tests. These values will be included in the Illinois soil-testing program to make the recommendations more concise and accurate in the future.

★

It's one thing to establish an alfalfa stand, but it's quite another to hold the stand at top production over a period of years, reports Marshall Christy, University of Missouri extension agronomist.

Mr. Christy points out that with adequate fertilization based on soil tests and with good cultural practices, it is possible to produce alfalfa yields of four tons per acre on many farms.

In producing such a yield, says Mr. Christy, the alfalfa crop will remove as much as 48 pounds of available nitrogen, 180 lb. of available potash and an amount of calcium equivalent to one-fourth a ton of pure calcite limestone.

Thus it is necessary to replenish the soil's nutrients with regular top-dressings of phosphate-potash fertilizer each year if you want to keep your alfalfa stand producing at a high level.

He advises an annual top-dressing of 600 lb. per acre of 0-20-20 fertilizer where the alfalfa stand is originally established with processed phosphate as part of the original fertilizer treatment.

Adding 25 to 30 lb. of borax is good insurance against boron deficiency, he says. This is available already mixed with the phosphate-potash fertilizer.

Summing up the advantages of regular maintenance applications of fertilizer, Mr. Christy says: "An annual top-dressing of plant nutrients will protect the investment in an established alfalfa stand and it will return a bonus in the crop yield, too."

★

Nitrogen supplied by commercial fertilizer gives greater corn yield responses than legume nitrogen, agronomist F. C. Stickler of Iowa State College reported in an address to members of the American Society of Agronomy, meeting in annual convention at Purdue University in Lafayette, Ind.

Mr. Stickler said experiments showed that nitrogen contained in legumes is less efficient than fertilizer nitrogen, pound for pound. And he added that on level, productive soils legume green manure crops may be a costly source of nitrogen for corn production.

The agronomist cited two reasons for this: (1) nitrogen in legumes is less efficient than fertilizer nitrogen, as pointed out. (2) A high-profit corn or soybean crop must be sacrificed in order to grow legumes with a low-profit oat crop.

However, other factors must be considered, Mr. Stickler said. Some farmers may grow legumes to supply nitrogen for corn in order to stay within acreage allotments, or for other reasons.

Mr. Stickler suggested the following legume green manure mixtures for Iowa: for the eastern half of the state, 4 lb. of biennial sweetclover, 3 lb. of southern non-hardy alfalfa, 3 lb. of medium red clover, and ½ to 1 lb. of ladino clover per acre. For the western half of Iowa, 5 lb. of biennial sweetclover, 4 lb. of southern alfalfa, and 3 lb. of medium red clover per acre.

Using a mixture of legumes reduces the hazard of a seeding failure, Mr. Stickler said.

Scientists Try Index For Early Forecasts Of Corn Borer Damage

ST. PAUL, MINN.—Agricultural scientists may have a new index for predicting in mid-summer how much corn damage there will be from European corn borers.

In a four-year cooperative study, research workers in Minnesota, Iowa and Ohio found that the number of borer-caused cavities in corn plants at the end of the "first-brood" infestation in early August gives a strong indication of corn yield reduction for the season.

This method, the scientists found, is better than the old system, which meant counting the number of borers in the fall. If proven after more research, the new index could help agricultural workers to more precisely measure damage from borers.

However, mid-summer method

won't replace the currently-used fall surveys. The cavity count in early August could be used to estimate loss in yield, while the fall survey would continue to be used as an estimate of over-wintering borer populations.

The study also showed that corn damage estimate from the index depends on a number of things: the weather, the region, the hybrid, planting date and level of infestation.

This research was conducted from 1953-56 at Waseca, Minn., Ankeny, Iowa, and Wooster, Ohio. H. C. Chiang and F. G. Holdaway, University of Minnesota entomologists, took part in the research, along with T. R. Everett, U.S. Department of Agriculture scientist in Iowa and E. T. Hibbs, Ohio State University researcher.

In general, the study showed a strong tie-up between weather, time of planting, corn borer "resistance" in hybrids and borer damage. But

the relationship wasn't the same from state to state.

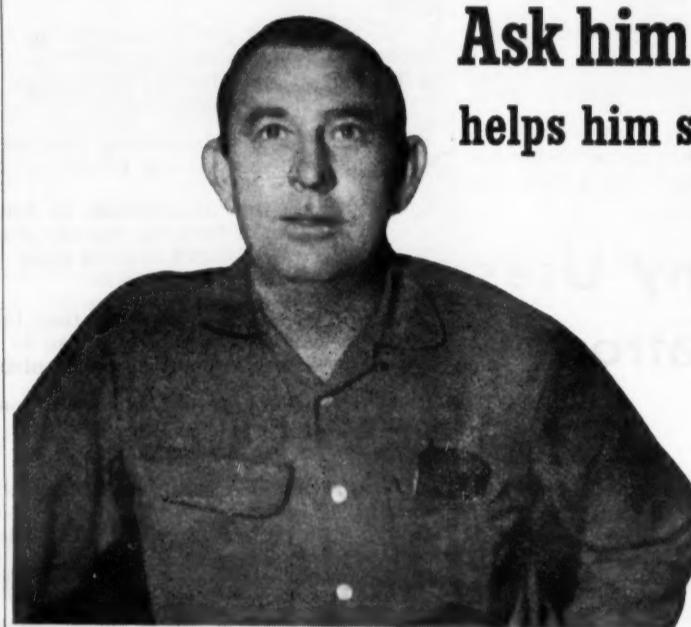
For example: As rainfall increased in Iowa, there were heavier attacks of second-brood borers. In Ohio, the reverse was true. Also, two particular hybrids in Ohio had more damage from second-brood than first-brood borers, while the opposite was the case in Iowa and Minnesota.

During the four-year study, Minnesota had the lowest borer infestation of the three states. This study is reported in detail in Technical Bulletin 229 from the University Agricultural Experiment Station, "Some Factors Influencing European Corn Borers in the North Central States."

TO MARKET POLYPROPYLENE

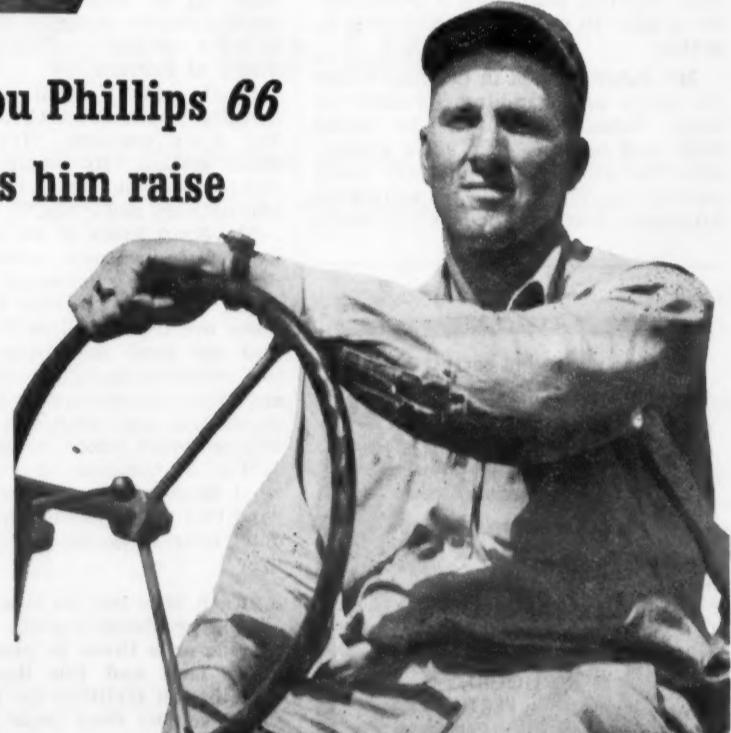
KANSAS CITY, MO.—Spencer Chemical Co. has announced plans to commence marketing polypropylene plastics under a four-year sales agreement with the Enjay Co., Inc., of New York.

Ask him: he'll tell you Phillips Service helps him sell more fertilizer



Clarence Osterbuhr, president of Anamo Co., Inc., Garden City, Kans., says: "I like to sell Phillips 66 Ammonium Nitrate because it's a first class product. But I also like Phillips service. Not only does my Phillips field man help me in many ways, but I can depend on the full resources of Phillips service, if I need them." Mr. Osterbuhr is just one of many dealers who find that the combination of a top quality product and Phillips service helps them make more sales and greater profits.

Ask him: he'll tell you Phillips 66 Ammonium Nitrate helps him raise better crops



Frank Wise, who farms 960 acres near Dimmitt, Tex., says: "I like the way Phillips 66 Ammonium Nitrate stores and spreads. Nothing discourages a farmer more than to discover fertilizer skips when his crop starts coming on. Phillips 66 Ammonium Nitrate spreads evenly, and gives me a more uniform crop response." Word-of-mouth praise of Phillips 66 Ammonium Nitrate by satisfied users is making new customers for dealers everywhere. You, too, will find Phillips 66 Ammonium Nitrate and Phillips service a profitable combination.

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TULSA, OKLA.—1708 Utica Square
WICHITA, KAN.—501 KFH Building





LINEUP OF TRUCKS—One of the features of the Kray Fertilizer Co. in Anamosa, Iowa, is the fleet of nine trucks (above) he has for servicing his customers. Below, Mr. Kray discusses a fertilizer problem with a customer for whom a soil test was made.

Iowa Fertilizer Company Uses 'Triple Line' to Win Patrons

By AL P. NELSON
CropLife Special Writer

No matter what type of fertilizer a farmer desires—dry, liquid or anhydrous—Kray Fertilizer Co. of Anamosa, Iowa, can furnish it. Al Kray, owner, says that it pays him to have all types of fertilizer in this corn and oats country. With such a triple line, he is able to get more customers, he states.

Mr. Kray started in business about 10 years ago handling fertilizer in bags. Some years later, he added bulk and bought some bulk spreaders. This step helped him win many customers. Then, talk of anhydrous ammonia was on the lips of many

farmers and Mr. Kray put in that line and did very well with it.

The last year he has been stocking mixed liquid fertilizer, which also helped him build his business. Next spring he plans to add blending equipment so he will be able to blend liquid fertilizer right on the premises, tailored to the individual requirements of farmers.

"Right now I haul mixed liquid fertilizer from Iowa City on order," Mr. Kray explains. "It's about 50 miles distant. By spring I'll blend right here, and thus reduce travel and delivery costs."

Mr. Kray looks at the matter this way: there are some farmers who are dry fertilizer customers, and they want to stick to this form. Then there are dry fertilizer farmers who also use some anhydrous, especially for sidedressing. Then again, there are some farmers who are experimental, and many of these are sold on liquid mixed fertilizer.

"I'm in business to give farmers what they want," explains Mr. Kray, "and this policy is working out. They don't have to go elsewhere for fertilizer."

Each area has its own merchandising problems, reports Mr. Kray. In his area there is quite a bit of hilly land and this hampers the sale of fall fertilizer for plowdown. However he does push fall plowdown and sells much fertilizer to those farmers in his region who have generally level land.

"Most of our operation is geared to the spring season," he states, "but we are pushing the sale of fertilizer months in advance. We hold many fertilizer meetings throughout the winter at the free community room at our new courthouse building."

Mr. Kray reports that he will spread about 4,000 acres this year. He has four spreaders. The cost of spreading is \$1 an acre to the farmer. Several farmers this year bought big semi-truck loads of fertilizer.

Mr. Kray states that about 20% of his customers have their soils tested. He has a kit for soil testing and also sends some customer samples to the

What's Been Happening?

This column, a review of news reported in CropLife in recent weeks, is designed to keep retail dealers on the regional circulation plan up to date on industry happenings.

Production of superphosphate in the U.S. for the period of July, 1957 to June, 1958, was 5% greater than that of the previous fiscal year, according to figures released by the U.S. Department of Commerce. The greatest gains were recorded in concentrated superphosphate.

The new farm bill will meet its first test in the corn referendum scheduled to be polled in December. In this vote, farmers will decide whether they want acreage allotment controls continued in the corn belt, and put the national price support for corn at the higher of 65% of parity or 90% of the national average market price for the three previous seasons.

Dr. R. T. Allman, president of Bradford Fertilizer & Chemical Co. of Canada, was elected president of the Canadian Fertilizer Assn. at the group's first annual meeting at Murray Bay, Que.

Howard J. Grady was elected executive vice president and a member of the board of directors of California Spray-Chemical Corp. at a recent meeting of the company's board of directors. He has been with the company since 1926.

Estimates for cotton and corn acreages for 1959 were made by the U.S. Department of Agriculture as follows: Cotton, more than 18 million acres, perhaps nearing 20 million acres. Corn will be planted in some 77.5 million acres, the estimate said.

Thomas R. Cox, American Cyanamid Co., was elected chairman of the Northeastern Research and Education Committee at its meeting on Aug. 22.

Production of ammonia in June, 1958, was below that of the same month of 1957, the Bureau of the Census reported. Comparative figures were 336,309 tons in June, 1958, and 348,158 tons the same month of the previous year.

USDA scientists discovered that the southern bean-mosaic virus or its infectious particles move from dead to living plant cells. This opens a new area for research in plant disease control.

A new chief forester for the National Plant Food Institute was named. He is Dr. Laurence C. Walker who took leave from the University of Georgia to take this special assignment.

The National Agricultural Chemicals Assn., through its executive secretary, Lea S. Hitchner, declared in a statement that the industry should not have to bear the cost of setting pesticide residue tolerances by the Food and Drug Administration, since the laws exist for the protection of the public and not for the benefit of pesticide manufacturers.

The Farm Bill, long-debated measure, was passed Aug. 18, awaiting the Presidential signature, considered certain. Despite wide predictions to the contrary, the bill did go through with only minor deviation from its version as passed by the Senate earlier.

The American Phytopathological Society met in Bloomington, Ind., to observe its 50th anniversary. Speakers told of possibilities for wider use of chemotherapeuticants in the control of various plant diseases.

Spencer Chemical Co. announced a new line of non-pressure direct application solutions to its nitrogen products. Joe Tuning was named to coordinate the sales of anhydrous ammonia and solutions.

Fertilizer tonnages in California showed a considerable increase in the fiscal year 1957-58. Comparative total figures were 1,123,325 tons for 1957-58 as compared to 1,079,748 tons the previous fiscal year.

Yield estimates for the 1958 crop year were stepped up by the U.S. Department of Agriculture as of Aug. 1. Earlier estimates of crop production went by the board as a new look was taken. New records were set on some crops, and all were above average in volume.

The Canadian Agricultural Chemicals Assn. announced that Hon. Duff Roblin, Premier of Manitoba, will be a guest speaker on its program, along with representatives of manufacturing firms and others in the farm chemical field. The meeting was set for Sept. 15-17.

Conventioneers at the 1958 Beltwide Cotton Mechanization Conference, Brownsville, Texas, were told that the use of herbicides and insecticides can enhance cotton growth and that such use brings added profits to growers by cutting unit costs of production.

That a "somewhat mixed" pattern of pesticide sales has existed throughout the 1958 season was observed by Melvin Goldberg, Pesticide Advisory Service, New York, in an article on Aug. 18. He said that price declines on some pesticides, exports, lack of demand for some products, and tight supply situations on others have made a confused picture.

Pesticide output for 1957 dipped some 10% below that of the previous year, according to a preliminary report by the U.S. Tariff Commission. It said that production of pesticides and other organic agricultural chemicals amounted to some 512 million pounds.

Agronomists from all parts of the U.S. were in attendance at the annual meeting of the American Society of Agronomy at Purdue University, Lafayette, Ind., Aug. 4-8.

The Federal Food and Drug Administration said that it would raise the fee schedule for determination of pesticide residue levels as required under the terms of the Miller Amendment to the Food and Drug Act.

The National Agricultural Chemicals Assn., Washington, D.C., announced that its annual fall meeting will be held at the Gen. Oglethorpe Hotel, Savannah, Ga. Oct. 29-31, instead of the Augusta, Ga. location as previously stated. The originally-set dates will remain the same, however.

from plowing to harvest time

SPRAYING SYSTEMS

TeeJet SPRAY NOZZLES

SOIL FUMIGANTS
TeeJet Flow Regulators for depth application and surface spraying.

LIQUID FERTILIZERS
BoomJet Spray Nozzles...for broadcast application.

WEED CONTROL
TeeJet flat spray Nozzles, for uniform controlled coverage.

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TeeJet Spray Nozzles with ConeJet or Disc Type tips.

Choice of over 400 interchangeable orifice tips for every farm need. For information, write for Catalog 30.

SPRAYING SYSTEMS CO.
3214 RANDOLPH ST. • BELLWOOD, ILL.

A PROVED AND DEPENDABLE SOURCE OF SUPPLY

(Turn to IOWA COMPANY, page 20)



Spencer "Mr. N" Ammonium Nitrate stays dry in new all-polyethylene bags, even during a driving rain. This new bag solves the

problem of limited storage space because "Mr. N" can be stored for weeks on porches and docks, in cribs or in fields.

Spencer Chemical Company announces the biggest bag news in the fertilizer industry in 18 years:

Fertilizer in a Weather-Proof Bag That Your Customers Can Re-Use:



You can make a porch a shed with polyethylene bags. This dealer is using plastic bags as a wall, so that he can even store paper bags outside!



"Free" tractor cover! 24 plastic "Mr. N" bags heat-sealed together make a tractor cover. A ton of "Mr. N" provides enough bags to make a tarpaulin worth about \$12—and big enough to cover a haystack.

Spencer "Mr. N" Ammonium Nitrate now comes in a clear, strong plastic bag that can be stored for several weeks right in the open . . .

First to give you prilled fertilizer for easier application . . . first to give you polyethylene-lined bags to stop caking . . . Spencer Chemical Company now brings you the most important new development in fertilizer packaging since the switch to paper bags 18 years ago!

This new development is a 50-lb. all-polyethylene bag, proved by nearly three years of testing to keep ammonium nitrate drier than any other bag made! In fact, polyethylene bags of Spencer "Mr. N" are so weatherproof that even a drenching rain can't get inside!

Storage space is increased because you can even make use of porches and cribs to store rainproof polyethylene bags.

Breakage losses are cut, both during moving and storage, because polyethylene is so much more tear-resistant than paper. For example, in test shipments of 51,240 fifty-pound bags, only 0.77% of the bags were broken. Even when bags break, loss is much less because polyethylene is tear-resistant. And bags that do break can be quickly mended with pressure-sensitive tape.

Also, these tough, weather-proof transparent bags go right on being useful, even after they are empty. Picture at left shows just one example.

To see many of these uses and to get a free sample of these remarkable new fertilizer bags, use coupon at right. Or, still better, be the first in your territory to offer "Mr. N"

in these revolutionary new bags. Place your order now through your fertilizer manufacturer.

How We'll Help You Tell Farmers You Have These Sensational New Bags:

With each shipment of "Mr. N" in these new bags, Spencer Chemical Co. will send you free announcement ad mats and copies of booklet, "How To Re-Use Plastic Fertilizer Bags." Also, your own announcements will be backed by full page ads in the September issues of Farm Journal, Capper's Farmer, and Progressive Farmer, reaching virtually every farmer in the Midwest and South.



MAIL THIS COUPON TODAY!

Spencer Chemical Company
536 Dwight Building
Kansas City 5, Missouri

Please send me the items checked below:
 Sample polyethylene bag.
 Copy of booklet, "How To Re-Use Plastic Fertilizer Bags."

Name _____

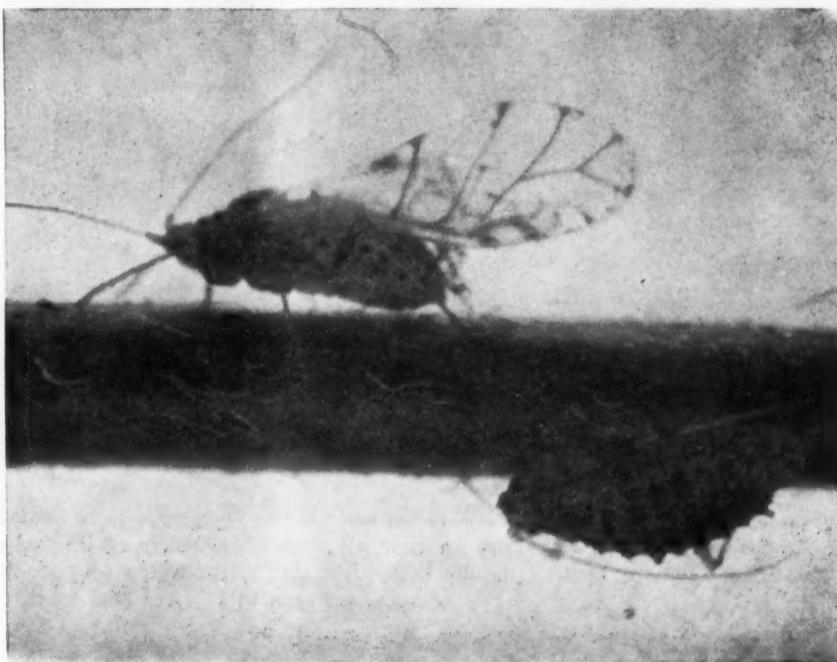
Address _____

City _____ State _____

Name of manufacturer from whom I buy
fertilizer _____

WEED OF THE WEEK

Spotted Alfalfa Aphid



How to Identify

This important pest is a small, pale yellow or grayish insect, with from four to six conspicuous rows of dark spots on the back and with "smoky" areas along the wing veins. The illustration above, greatly enlarged, shows both the winged and wingless forms of the spotted alfalfa aphid (*Theroaphis maculata*). When first noted in 1954, it was confused with the yellow clover aphid which has been known for years as a pest of clover in the eastern states. Closer investigation disclosed the fact that the pest is the spotted aphid.

Habits of the Aphid

Peculiarly, the spotted alfalfa aphid can both lay eggs and produce living young. In northern climates, the aphid overwinters in the egg stage and in the spring these eggs hatch into females. These females can produce living young without mating. Generation after generation during the summer produces only these living young, some of which have wings which enable them to seek new food sources. Toward the fall of the year, both males and females are produced. They mate to produce eggs which overwinter and begin the cycle all over again.

Damage Done by Pest

Its rapid spread since being first reported in New Mexico in 1954, has caused authorities to consider this pest as a "threat to all alfalfa-producing areas of the U.S." It attacks the lower leaves of the alfalfa plant, feeding on the bottom

sides of these leaves. Young aphids, produced at the rate of from 2 to 5 a day, kill these lower leaves by their sucking. The pest moves up the stem to upper leaves, ruining the plant as it goes along. Its sticky secretion which coats both leaves and stems, not only acts as a medium for fungi, but reduces the quality of the hay, as well. The sticky honeydew clogs up baling machinery badly.

Control of Spotted Alfalfa Aphid

Both natural control with predators and use of insecticides have been recommended in various areas. Predators thus far have been completely unable to cope with the fast build-up and destructive propensities of the aphid. Thus the use of insecticides must provide an answer. Emphasis has been laid on both timing and application techniques for spray and dust treatments. Successful results have been had from both airplane and ground equipment. Extra care must be taken in thorough application, since the aphids congregate on the under-side of leaves. It is also emphasized that treatment of individual fields is not sufficient, since the winged forms of the pest migrate widely and reproduce rapidly. Cooperation between growers in an area is desired so that all infested fields are treated. In order to know when to apply insecticides for optimum results, careful inspection of fields should be made at least three times a week. Local authorities should be consulted as to the kinds and amounts of pesticides that can be used without leaving illegal amounts of residue at harvest.

Chemicals 'Sideline' Proves Profitable at Nebraska Store

By JESS F. BLAIR
CropLife Special Writer

Farm chemicals are an important sideline at Daily & Sons, Fremont, Neb., and the profit comes in quite handy, says Bill Daily, co-owner of the firm.

At present he and his partner, Gayle Eggers, are selling about \$30,000 worth of fertilizers, insecticides and weed killer a year. In addition, the sale of poultry and livestock remedies and allied medication brings in around \$1,000 a month.

"Farm chemicals are seasonal here," says youthful Mr. Daily, "but they fit in nicely with main lines, which are feed and the processing of eggs. We can handle fertilizer and insecticide with the same number of employees, same trucks and storage and very little extra time and book-keeping."

In trying to make their firm a one-stop service store, the owners found that selling was easier because they had a list of ready-made customers for fertilizer. Since they had been selling feed for several years, why not sell fertilizer and insecticides, too? And when a farmer mentions weeds, the two owners are ready to discuss advantages of weed killers. At the beginning, farm chemicals were considered as something extra to keep customers from going elsewhere. Now they are becoming an integral part of the business.

The owners are both young men but with several years experience behind them. Mr. Daily is 27, while his partner and brother-in-law, Mr. Eggers, is 31. The firm has enjoyed a steady growth since the two took it over eight years ago.

"We had a good feed business," Mr. Daily said, "and there seemed to be an opportunity in farm chemicals also. Knowing these products do not sell themselves, a few weeks before time to apply fertilizers we start talking about it to farmers and try to get them to place their orders early."

Since Mr. Daily is the outside service man and salesman, he is in a good position to visit farmers at their homes. He looks at the soils, gets a field history and makes recommendations. By getting this information first-hand and then checking back on the fields at harvest time, he can build a store of useful information on which fertilizers to use.

The owners have a warehouse in another part of town where bulk fertilizer and other agricultural chemicals are stored. Much of their fertilizer is sold in bulk form. They use a seven-ton truck in making deliveries, with the materials being placed directly in the farm storage units.

"This bulk handling is something we started a few years ago," says Mr. Daily. "By handling it this way, we can make the farmer a better price. It saves labor and time and we can still make our usual profit."

Another service to customers is the equipment which is loaned free. The store has two pull-type applicators, one of which is equipped for handling the granular type fertilizer for corn plantings. Farmers may use the equipment free of charge, provided they take care of it and buy the materials from Daily & Sons.

"This loaning and renting of machinery can become a problem," says Mr. Daily, "and some dealers won't do it at all. In our case, it works better because I am in the field so much. I can always drop by a farm to see if a man is finished with an applicator. If it isn't operating correctly, I can make adjustments. By keeping right on top of this type of service,

we have eliminated most of the worries."

The firm also stocks farm chemicals in barrels, so that farmers may bring in their own containers and buy any amount. Other items handled in sizeable quantities are weed killers. Farmers are beginning to use them more and more in the place of hoeing and extra cultivating. By making deliveries and handling the material in bulk form, they have increased sales considerably.

"We keep talking about the new products," says Mr. Daily. "If something new comes out, we learn all we can about it then pass it on to our customers. If a dairyman



PROFITABLE TIE-UP—Co-owners of Daily & Sons in Fremont, Neb., are Gayle Eggers (left), and Bill Daily. The two have developed a profitable farm chemical business by tying sales in with their egg processing and feed store operation. At left, workmen fill a pull-type insecticide applicator at the Daily & Sons location. The owners found by loaning this type of equipment to farmers, their farm chemical business more than doubled.

complains about flies and we have a new type spray, we induce him to try it out. If it works well, he will tell everyone about it."

Mr. Daily and Mr. Eggers have a liberal advertising program for fertilizer as well as their other products. During the spring and summer when

*T.M. Reg. App'd For

Big Dave establishes a new standard in mixing Triples!

Davison's new Hi-Flo Run-O-Pile Triple flows better because it contains less dust. It's easier to handle, cuts unloading costs, and increases your production efficiency. It represents a *real advancement* in mixing Triples.

Hi-Flo Run-O-Pile Triple Superphosphate, made only by Davison, has high capacity for absorption of ammonia in processing either granulated or powdered mixed fertilizers because of its porosity, friability and constant 46/47% P₂O₅ content. It has proven satisfactory for granulating in several different types of granulating equip-

ment. Hi-Flo Run-O-Pile has passed all tests it's been put to in batch and continuous ammoniators. It helps you produce low-cost formulas.

You will like to work with non-dusting Hi-Flo Run-O-Pile Triple. Big Dave says, "We can ship now. Let's talk it over."

W.R. GRACE & CO.
DAVISON CHEMICAL DIVISION
BALTIMORE 3, MARYLAND



insects are prominent, the firm advertises various insecticides in newspapers and on the radio. It also uses the yellow pages of the telephone book and other types of advertising at various times. Mr. Daily says the classified ads are one of the best advertising mediums, because so many people read them and the cost is reasonable.

"But the best advertising of all is when a satisfied customer tells a neighbor about our place," says Mr. Daily. "And to satisfy people, or at least we find this true, you must give them good products, charge a reasonable price and then provide extra service."

"Every farmer, poultryman and livestock feeder must have help in

USE THE "SWEPT-WING" HOOD OF THE *Henderson* **CHIEF**

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Cedar Rapids, Iowa



GOOD SALESMAN—One of the best salesmen for spray materials that the industry has is the town and county highway spray crews. These crews travel roads spraying weeds in mid-summer, and when farmers see this, they, too, get the idea of spraying. Fertilizer dealers who will collect some pictures of town and county crews spraying and use them in ads, will find that the "suggestion" about spraying will "take" with many farmers. Pictures of such crews spraying show what can be done to control weeds on premises other than active cropland and many farmers have acreage of this type, at least in part. This picture was taken in mid-June on an Iowa highway.

keeping up with new products and methods. If the dealer can help them, then they will keep coming back to his store. Right now I'm supposed to be spending six days a week in the field; but in a few weeks we are putting on another man to help me. That's how much we think of customer service.

IOWA COMPANY

(Continued from page 16)

state lab. Of the 20% who have their soils tested about one-third fertilize close to soil test recommendations.

"We are going to work on pasture fertilization," Mr. Kray says. "I think this is an unexploited field. By pushing fall pasture fertilization we are going to be able to sell more fertilizer in the autumn months."

In this section of Iowa farmers are using 5-20-20, and 5-20-10 grades of

fertilizer on corn. Forty percent of his oat farmers are using 5-20-20, 30% are using 0-20-20, and 30% are using 0-20-0.

At the present time 50% of Mr. Kray's dollar volume sales are in bulk fertilizer. Bags constitute 30% and 20% are anhydrous and liquid sales.

This dealer also sells quite a few farm chemicals, especially weed sprays. He owns a Gandy sprayer and during the summer has one employee who does custom spraying. Many farmers have their own sprayers and these buy chemicals at the Kray headquarters.

"I think we have a tremendous field for potential sales in this part of Iowa," states Mr. Kray. "There remain many farmers to be sold fertilizer in the amounts recommended by soil tests. With a lot of pasture land being used for dairy and beef cattle, this means more fertilizer sales. The same is true on farm chemicals. But we have to advertise and do more education on these subjects. This winter we are going to step up our meetings on fertilizer and related subjects. We know it will pay off."

This fertilizer dealer has a sideline which perhaps is not employed by many other fertilizer dealers. However, it ties in very well with fertilizers. Mr. Kray owns and operates two earth moving machines. One bulldozer is a Caterpillar D. 6 with a cable dozer, and an Allis-Chalmers H.D. 5 with a loader.

What does Mr. Kray do with these bulldozers? He digs basements, many of them for farm homes and other buildings; he hauls dirt and fill to yards, and he also constructs farm ponds, which are numerous in Iowa where lakes and rivers are scarce.

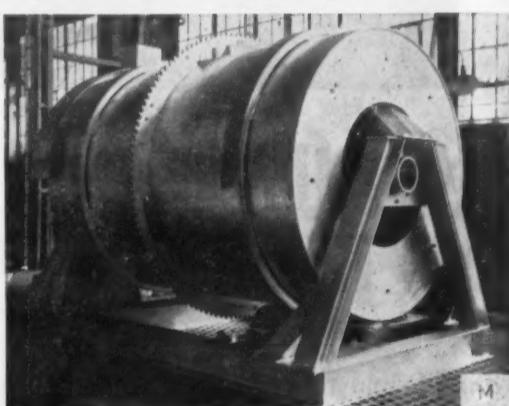
To make these farm ponds, Mr. Kray and his men sometimes move as many as 1,500 yards of dirt. The cost of constructing a farm pond ranges from \$350 to \$1,000, depending on size and location. Mr. Kray works with the soil conservation department on these farm ponds and gets its recommendations. If ponds are built properly, they cost farmers very little, with the government paying some of the cost.

On such ponds a stock tank for cattle, with a float in the tank, is required. A 1½-in. galvanized pipe is used to bring water from the pond to the stock tank.

"This activity keeps us in touch with conservation officials, farmers and others interested in the soil," states Mr. Kray. "Fertilizer sales naturally follow in many of these instances from the proper contacts."

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TVA AMMONIATOR WITH PREMIXING & PELLET FORMING SECTIONS



6' dia. x 9' Long Ammoniator With Premix and Ammoniating Sections Only, Shown During Construction in Our Fabrication Shops.

Available in 8'-9'-10'-11'
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CHEMICAL ENGINEERING SERVICE (Formerly at Green Bay, Wis.)
Division of MANITOWOC SHIPBUILDING, INC., MANITOWOC, WIS.

Visitors Shuttle via Helicopter to See IMC's Suburban Administration Center

By DON ROGERS and AMOS STANDISH
CropLife Staff

SKOKIE, ILL.—A helicopter lift from Chicago's loop to the new \$5 million administrative and research center of International Minerals & Chemical Corp. at Skokie, Ill., seemed to be an appropriate manner in which to get a bird's eye of this new suburban center. IMC, playing host to press representatives on Friday, Sept. 5, gave the visitors a detailed look-see at the facilities, an opportunity to meet key personnel among the 600 employed at the center, and in the afternoon, a return trip via helicopter to Chicago's loop.

The takeoff on the return trip was from the same spot on the top of five-story administration building where the craft had landed on the incoming flight. These helicopter facilities put the city's major airports only minutes from the new center.

The center, as pictured in CropLife's issue of Sept. 8, comprises five new buildings and a research center, built on the 21-acre site in 1951. The center fronts on a central plaza with a patio and reflecting pool, and is landscaped to create a campus-like atmosphere.

The new structures, in addition to the administration building, include a three-story building housing the staff and operating divisions, a one-story electronic center, a one-story lounge for employees, and a one-story cafeteria building.

The company began operations in 1909, producing phosphate and mixed fertilizer, and has grown from \$5 million in annual sales then to more than \$100 million at the present time, with 90% of that gain coming since the corporation moved its headquarters to Chicago from New York in 1941.

The buildings themselves incorporate every advantage of modern office construction, with maximum efficiency of arrangement providing 89% usable space in the building's office floors, IMC pointed out to the visitors.

The center has its own 450-car parking lot, with special lots for guests and top executives.



Graves

Morris

Vulcan Announces Two New Appointments

BIRMINGHAM, ALA.—Vulcan Steel Container Co., Birmingham, has announced the appointments of two sales representatives. Cothran C. Graves has been made southeastern regional sales manager, and Fred L. Morris, sales-service representative.

Mr. Graves is a graduate of Princeton University and has been in the steel pail and drum business for 17 years. He will make his headquarters at the company's main office in Birmingham.

Mr. Morris is a native of Alabama and attended the University of that state to earn a degree in commerce and business administration.

Announcements of the appointments were made by Gordon D. Zuck, president of the company.

Ground was broken for the new buildings in December, 1956, and employees moved into the center late in June of this year. Finishing touches of the construction were completed Sept. 1.

Cultured Rhizophagus Grown by Pathologist

BERKELEY, CAL.—Rhizophagus, one of the most common and least understood of all root-infesting fungi, has been isolated and cultured for the first time by a plant pathologist at the University of California here.

On the roots of many plants throughout the world—including ornamentals, vegetables and field crops—the fungus establishes a very

close relationship, "mycorrhiza."

After many unsuccessful attempts, James T. Barrett, plant pathologist emeritus, has succeeded in isolating Rhizophagus from its root hosts and causing it to grow in a culture medi-

um of potato agar and hemp seed extract. The Berkeley scientist has already determined that the fungus changes form and appearance depending upon the plant host upon which it is growing.



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ARCADIAN® LIQUID NITROGEN PRODUCTS

- URAN® Nitrogen Solution Urea, Ammonium and Nitrate Nitrogen
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- NITRANA® Nitrogen Solution Nitrate and Ammonia Nitrogen
- Anhydrous Ammonia Concentrated Ammonia Nitrogen

ARCADIAN DRY NITROGEN PRODUCTS

- AMMONIUM NITRATE Pelleted Nitrogen Fertilizer
- UREA 45 Nitrogen Fertilizer Pelleted Urea Nitrogen
- A-N-L® Nitrogen Fertilizer Nitrogen with Magnesium
- AMERICAN NITRATE of SODA Nitrate Nitrogen and Sodium

- All of the above products are for direct application to the soil. ARCADIAN Nitrogen is also the leading source of nitrogen used in the manufacture of mixed fertilizers.

ARCADIAN Nitrogen is easy to sell! The ARCADIAN trade-mark is a symbol of quality and dependability to farmers. They buy and use more ARCADIAN Nitrogen than any other brand.

When you handle ARCADIAN Nitrogen, you are served by America's long-time leading producer of the most complete line of nitrogen products—liquid and dry—on the market. You have many different forms of nitrogen from which to select those best suited to your customer's needs.

You benefit from millions of tons of nitrogen experience and the enterprising research that originated many of the nitrogen products which are now generally used. Farmers are pre-sold on ARCADIAN. Your sales are supported by the most powerful advertising and promotion campaign ever conducted to sell nitrogen.

It pays to sell the nitrogen that farmers prefer! More farmers buy ARCADIAN Nitrogen than any other brand!

NITROGEN DIVISION

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Kalamazoo, Mich. • St. Paul 4, Minn. • Columbia, Mo. • Atlanta 3, Ga. • San Francisco 4, Cal. • Memphis 9, Tenn.



Potash Officials Face Decision Whether To Make Canada Prime Source of Supplies

SANTA FE, N.M.—New Mexicans have been warned by U.S. Potash Company officials that Canadian discoveries may eventually reduce potash production at Carlsbad, N.M.

"It now appears that we must make the decision either to operate in Saskatchewan or in New Mexico," the company report added.

"We think that this is a decision which will be faced by all Carlsbad producers in the next few years on the assumption that mining in Saskatchewan will be successful," it continued.

The report was prepared by Dean R. Gidney and Earl H. Miller, U.S. Potash Company officials, for a group of New Mexico lawmakers attending a forum on the state's economic development, sponsored by the New Mexico Legislative Council, here.

The representatives cited a better

grade Canadian ore, lower operating costs in Canada and lower potash prices resulting in lower profit margins as factors that may dictate the move.

"The Canadian potash," it said, "is not only higher grade than that which is left in our mine at Carlsbad but even higher than the best ore that we had to start with."

The officials added: "The Canadian mines will also be operating with lower cost labor and with an exemption from income taxes for the first three years of operation and with definite tax advantages for the next two years."

U.S. Potash Co., now a division of the U.S. Borax and Chemical Corp., opened the potash industry in New Mexico with a plant that began production in 1931 at Carlsbad.

Potash prices are at the lowest point since before World War I and one-third lower than 1931, the report stated.

"At present," the U.S. Potash officials said, "the five companies in New Mexico, along with American Potash and Chemical Corp. at Seales Lake, Calif., account for about 97% of domestic production."

The U.S. now produces 25% of the world's potash, the report continued. Yet, European producers can deliver potash to the Eastern seaboard cheaper than it can be shipped by rail from Carlsbad.

The Canadian deposits are also located a great distance from major markets but it appears that they will have certain freight advantages (offered by Canadian railroads) . . . , the report stated.

"The Carlsbad producers will make every effort in conjunction with the Santa Fe Railway to protect our position through equalization of freight rates, but it very probably

will not be possible to do this in all cases.

"In contemplating entry into Canada we must have considered the possibility of plants in both locations. The economics of the situation would seem to rule this out."

"We have permits from the Saskatchewan government for exploration on approximately 200,000 acres and within the next two years we must decide whether to apply for a lease on a limited portion of that acreage."

The officials said, "We have been making extensive and exhaustive studies concerning the economics of production in Canada versus production in Carlsbad, and whereas no final conclusion has been reached, it now appears the Canadian producer will have a substantial advantage over the Carlsbad producer."

Best Lowers Price On Anhydrous Ammonia

OAKLAND, CAL.—Best Fertilizers of Oakland has announced new anhydrous ammonia prices, according to Lowell W. Berry, "in view of the very competitive situation on the supply of ammonia in California."

The company's prices for the August to December period of 1959 will drop to \$63 a ton f.o.b. the Best plant at Lathrop, Cal. Price for this fertilizer will be \$68 per ton for the January through July period of 1960, and then will drop to \$63 from August to December of that year for off season deliveries. Mr. Berry said that Best is offering these prices on a three-year contract basis.

Robert Steinbruch Named To MCC Research Post

MENLO PARK, N.J.—Robert Steinbruch has been appointed manager of contract research for Minerals & Chemicals Corp. of America, announced Dr. C. G. Albert, director of research. Mr. Steinbruch will devote his activities to the utilization of M&C's research facilities for sponsored research and development work.

Mr. Steinbruch joined Minerals & Chemicals Corp. of America in 1954 in application research. He has been technical assistant to the director of research and most recently served in sales technical service in adsorbents and catalyst sales.

Oregon Grants \$7,000 To Fight Rabbit Buildup

SALEM, ORE.—Money to fight a buildup of rabbits in eastern Oregon was recently appropriated by the state emergency board.

The board approved spending up to \$7,000 to fight the infestation of the animals in the region between the Harney Valley and the Idaho state line. The rabbits have been reported moving in large numbers from the high desert country into irrigated lands.

Potential health danger from the rabbits, which sometimes carry diseases, was cited by the emergency board in approving the money.

The appropriation will be used to spread poison, J. R. Beck, Oregon State College, said. Mr. Beck is in charge of a campaign against field mice which the state has undertaken.

It was announced at the emergency board meeting that \$61,000 of the \$100,000 appropriated by the emergency board to fight the field mouse epidemic last year would not be needed and is being returned to the state's emergency fund.

NORTH CAROLINA TONNAGE

RALEIGH, N.C.—North Carolina fertilizer sales for July, 1958, were 22,354 tons compared with 12,999 tons for July, 1957, reported L. Y. Ballantine, commissioner, state Department of Agriculture.

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TECHNICAL PAPERS

(Continued from page 1)

material (54% to 56% P_2O_5) by reaction of phosphate rock with superphosphoric acid had been studied in bench-scale, pilot-plant, and plant-scale equipment. The best results were obtained when the acid concentration was about 74% P_2O_5 and when the acid was preheated in the range of 180° to 225° F. When the superphosphate was held in a den or storage pile, its temperature reached a maximum of 300° to 350° F. in about 40 minutes. This high temperature promoted fluorine volatilization and rapid conversion of the P_2O_5 to an available form, the authors reported.

The superphosphate usually contained 1% or less of free moisture, and the P_2O_5 was chiefly in the form of anhydrous monocalcium

phosphate. About 65% of the fluorine was evolved as compared with about 15% in the production of conventional triple superphosphate. The comparatively anhydrous nature of the product and evolution of compounds of fluorine account for the substantially higher P_2O_5 content.

Good ammoniating and processing characteristics have been demonstrated in pilot-plant and plant-scale production of granular fertilizers. Economies should be realized in handling and shipping the more concentrated superphosphate and in the higher grades of fertilizers that can be prepared with this material, the paper concluded.

The effects of nitrogen, phosphorus, and potassium fertilizers on fruit yield and composition of tomato plants was reported in a paper by John L. Malcolm, Sub-Tropical Experiment Station, University of Florida, Homestead, Fla. He said that similar results were obtained in two successive seasons through the application of nitrogen, phosphorus and potassium on winter tomatoes.

Best results were obtained, the author said, with 150 lb. nitrogen, 300 lb. P_2O_5 and 150-300 lb. K_2O an acre. High nitrogen applications depressed yields, the paper said, and significant interactions were found between the several elements.

Composition of leaves was affected by the application of each of the elements, but not in proportion to the rates of application. The rate of application of one element significantly affected the concentration of other elements in the leaves. Growth responses, ion competition, and secondary soil effects were all indicated

by these differences in leaf composition, according to the paper.

The method of producing dicalcium phosphate via the nitric acid cycle, and the economics involved, were discussed by Ernest S. Nossen and Roy E. Parks of the E. S. Nossen Laboratories, Inc., Paterson, N.J. The paper pointed out that although in most common phosphate fertilizers, super and triple superphosphate, the phosphorus is present as water-soluble monocalcium phosphate. In spite of this, the paper said, at least one third of the phosphorus consumed as fertilizer reaches the soil in the form of dicalcium phosphate in ammoniated mixed fertilizer preparations.

Dicalcium phosphate can be produced at lower cost than superphosphate via the nitric acid cycle because of recovery and re-use of the acidulating acid, the authors said. Simultaneously, they added, the natural resources of sulfur and lime are conserved.

The nitric acid cycle was originally developed for extraction of metals from ore and operated at a large scale pilot plant with a capacity of 12 tons ore a day. It has now been applied to phosphate rock on a semi-pilot-plant scale. In leaching phosphate rock with dilute nitric acid soluble phosphorus compounds and calcium nitrate are formed. Separation of these two is effected by precipitation with lime, leading to formulation of a crystalline dicalcium phosphate, which is easily filtered and washed free from nitrates. The product is dried and disintegrated.

The nitrate solution is concentrated in an evaporator and then decomposed at a temperature between 600° and 700° C., to form nitric acid and lime. Both decomposition products are recycled to the leaching or precipitation step with an excess of lime available for sale.

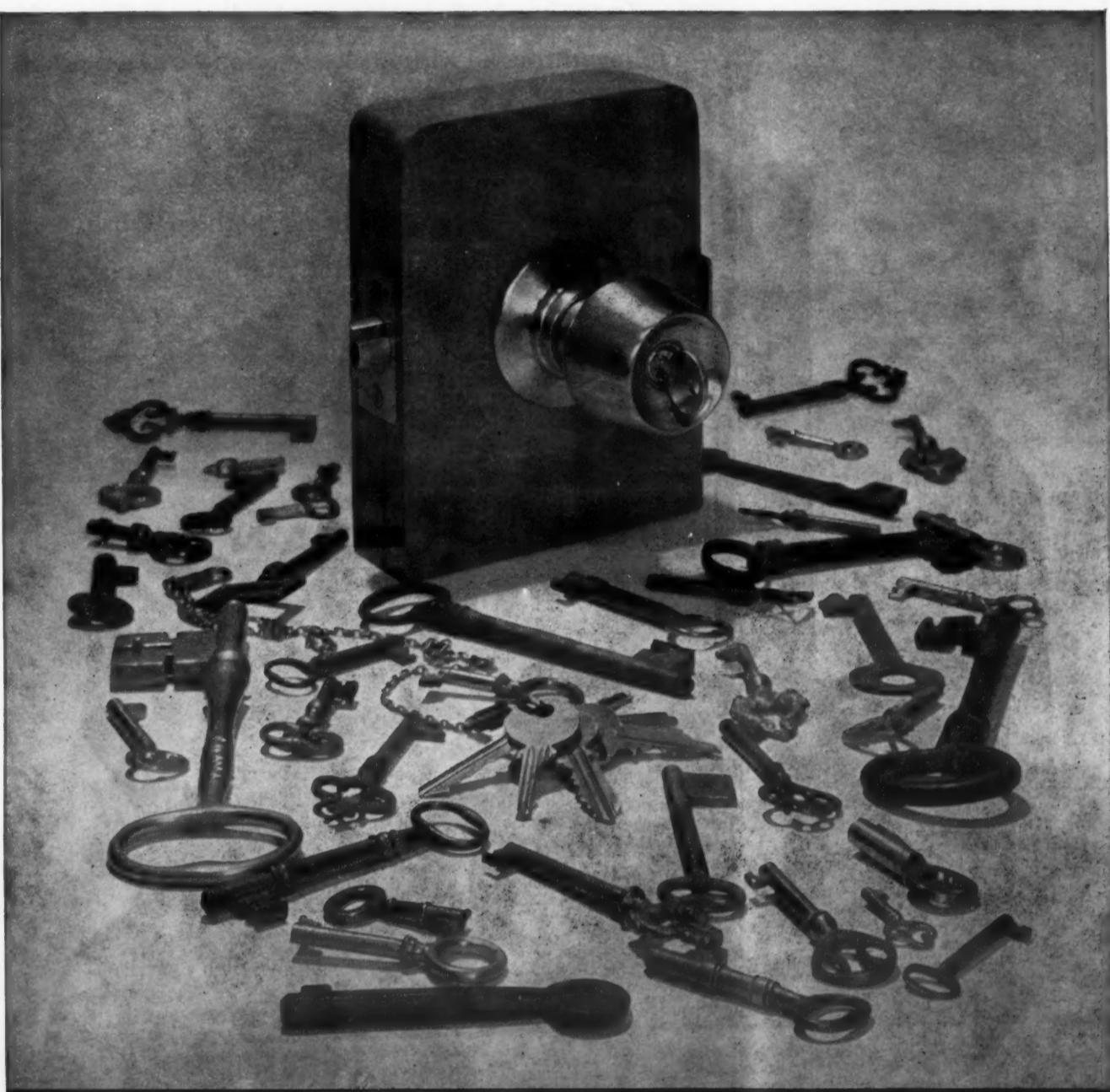
Feed grade dicalcium phosphate has been produced by insertion of two purification steps for the solution prior to dicalcium phosphate precipitation. Factory cost of the product is about 50% lower than dicalcium phosphate produced from furnace acid, the paper noted.

The adaption of electronic devices to aid in the calculation of fertilizer formulations was discussed by David G. Rands, John H. Payne, Jr. and R. T. Webber, Monsanto Chemical Co., St. Louis, Mo. They described the way they have employed the IBM 702 machine for such computations to determine the economics and operating characteristics of a series of 1-1-1 ratio granular fertilizers.

As an example, they said, the effects of varying amounts of diammonium phosphate and phosphoric acid on the granular grades of 12-12-12; 13-13-13; 14-14-14; and 15-15-15, showed the relationship of the effect of variation in these raw materials upon the cost of these materials and recycle to yield a workable formulation. By using the manufacturer's raw material costs and specifications, it is possible to evaluate completely the use of specific raw materials in his manufacturing operations, it was pointed out.

Further use of the electronic computer in the calculation of formulations for granular fertilizers was presented in a paper by John H. Payne, Jr., and R. T. Webber of Monsanto. This paper said that a formulation service has been put into operation to assist granular fertilizer manufacturers with economic studies and improvement of plant operation. Advantages of the method, the authors pointed out, include rapid calculations for various grades of fertilizers, using the customers' raw material specifications and operating conditions.

For each grade, the paper pointed out, formulations can be calculated using different raw materials. Once



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the most economic raw materials have been established, a series of formulations is calculated in which heat and moisture and ammonium level are varied systematically over the range of useful formulations. The final selection is based on actual plant tests, the authors reported.

Joseph A. Noone, technical adviser of the National Agricultural Chemicals Assn., Washington, D.C., presented a paper on "Pesticides, Their Impact on Food Production and Consumption" at a session of the ACS Division of Agricultural and Food Chemistry. He pointed out that the American public has a food supply characterized by quality, variety, and abundance unequalled in the world. The use of safe and highly effective pesticide chemicals in the production, storage, and transportation of various agricultural commodities has been a major factor in this development, he pointed out. Without pesticides, many important food crops could not be produced in this country or at best, only in very limited quantity and at very high price to the consumer. Pesticides also make it possible to store certain fresh commodities, so that they are available on a year-around basis rather than for just a short season.

The use of pesticides has thus markedly influenced the quantity, quality, variety, and price of foods available for the American dining table and, as a consequence, it has had profound effects on the diet. Data of the effects of pesticides in the production, storage, and transportation of various foods correlated with the changing composition of the diet and food consumption, offer evidence to this effect, he said.

GRASSHOPPERS

(Continued from page 1)

the intensity and location of remaining grasshopper populations and determine areas which should be watched carefully in 1959.

Treated areas included 138,500 acres in Arizona, 2,761,600 in Colorado, 53,500 in Idaho, 248,800 in Kansas, 97,600 in Montana, 41,000 in Nebraska, 148,200 in New Mexico, 237,000 in Oklahoma, 924,000 in Texas, and 274,800 in Wyoming. Croplands treated by farmers—in addition to the cooperative program—are not included in these acreages.

More than 87% of the treated land lies in the lower Great Plains; in Colorado, Kansas, New Mexico, Oklahoma and Texas. The areas in greatest danger of grasshopper attack were included in this year's program. Remaining infestations will be carefully watched and given attention if they become critical next year, USDA said.

In the five-state area, the campaign kept some 200 workers (including 93 USDA specialists), 130-odd vehicles, and more than 100 airplanes at work spraying 4½ million gallons of mixed insecticides at an over-all cost of about \$2 million. USDA bears about one third of the cost of such cooperative programs, with state and local agencies and ranchers sharing the other two thirds of the expense.

Migratory grasshoppers caused the major outbreaks this year. Weather conditions in the fall and spring were ideal for their development. The desert grasshopper, a species that usually does not migrate, also winged into the limelight earlier in the year. Apparently dryer than usual weather triggered a migration in Nevada and Arizona. In April, one large migration converged on Las Vegas, Nev. Accumulated dead grasshopper bodies necessitated special city clean-up measures. There was little damage to vegetation, however.

In May, swarms of flying grass-

hoppers descended on Tucson and other Arizona cities. Apparently attracted by the lights, they flew into Phoenix en masse during the early morning hours, blanketing the city. Some were observed by commercial airline pilots at elevations as high as 5,000 feet over Arizona.

A spray of two ounces of either heptachlor or aldrin applied in one gallon of diesel oil to the acre controls all species of grasshoppers under most conditions. One application of these insecticides this year continued to control late-hatching grasshoppers and in some cases remained effective against the second and third invasions of adult grasshoppers. In Kansas and Colorado, many farmers prefer a bait of bran or rolled grain impregnated with insecticide for row crops and fall wheat, because existing vegetation fails to catch and hold a lethal quantity of sprayed insecticide.

USDA, AEC Exhibit Pits Atom Versus Screwworm

WASHINGTON—An exhibit, "Atoms Versus the Screwworm," planned jointly by the U.S. Department of Agriculture and the Atomic Energy Commission, was a feature of the U.S. display at the International Conference on Peaceful Uses of Atomic Energy which convened in Geneva, Switzerland, Sept. 1-13.

The exhibit told how states in the southeastern United States and the Department of Agriculture are currently cooperating in the use of nuclear energy to eradicate a crippling and death-dealing parasite of livestock.

Pictures, data, maps, and technical aid used in designing the exhibit were furnished by USDA's agricultural research service to the Atomic Energy Commission, which constructed and shipped the exhibit to Geneva.

The three-panel exhibit displayed

a series of large, illuminated color pictures and artwork, accompanied by text in English, French, Spanish, and Russian. It showed how 50 million screwworm flies are reared weekly in special laboratory facilities at Sebring, Fla., and how the flies are sterilized by use of radioactive cobalt 60.

The exhibit also showed how the sterile screwworm pupae are put in boxes where the flies emerge and how the boxes are distributed over the screwworm-infested area by airplanes.

The principle of the eradication program—used successfully to eradicate the screwworm from the Caribbean Island of Curacao—is based on the fact that the female screwworm fly mates only once. Mated with a sterilized male, she produces no fertile eggs. Systematic release of large numbers of sterile males over the eradication area gradually reduces and eventually wipes out the native screwworm populations.

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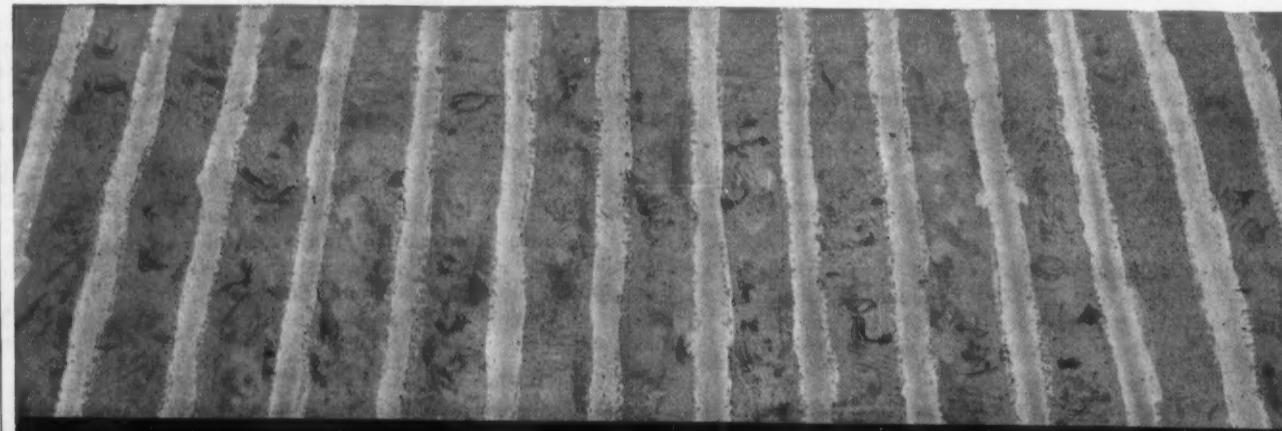


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The regional circulation of this issue is concentrated in the Midwestern states.

INDUSTRY DEFENDED . . .

Miller Amendment Author Calls Current Fee Schedule of FDA Unfair to Pesticide Trade

THE point made by the National Agricultural Chemical Assn. recently, in its position that the industry should not be expected to pay additional fees for having residue tolerances set, has been underlined by the author of the Miller amendment to the Federal Food, Drug and Cosmetic Act. Hon. A. L. Miller (R., Neb.), in an exposition before the House of Representatives and published in the Congressional Record, argued that pesticide makers should not be obliged to pay fees as high as those now imposed. He also pointed out, in additional remarks, the prime importance of the insecticide industry and its products.

The price of setting tolerances has gone too high, Mr. Miller indicated. In February, 1955, he said, the FDA promulgated a regulation which specified a series of fees for the various steps involved in the tolerance setting and review procedure. This original schedule, Mr. Miller said, required the payment of \$500 for the filing of a petition for the establishment of the initial residue tolerances for any given pesticide chemical, and a \$50 filing fee plus \$50 for each additional tolerance requested later on the same chemical.

Later that same year, he recalled, the fees were doubled to \$1,000 and \$100 respectively, and now the FDA has raised these fees to \$2,500 and \$250 respectively. "This amounts to a five-fold increase since February, 1955," Mr. Miller declared.

"Under this new fee schedule, if a manufacturer develops a new pesticide chemical and seeks a tolerance for it on a certain crop, he will have to pay \$2,500 before the Food and Drug Administration will accept his petition and consider his data. Each time that he comes back for an additional tolerance on another crop, he will have to pay another \$500.

"Some pesticide chemicals find use on a great number of crops. Thus, a considerable amount of money can be involved in getting these important pest control chemicals approved by the FDA so that they may be used by our farmers and growers for the protection of their crops. These fees for FDA approval are ultimately reflected in the prices which our growers must pay for these essential pesticides.

"Since approval of a pesticide chemical by the FDA through the establishment of a tolerance or exemption is usually a prerequisite to the sale of that product for use on food crops, the fees charged in connection with such approval, in effect, constitute a tax to do business. It imposes additional and unnecessary burdens on small companies."

The congressman pointed out some parallel cases, such as the Poultry Products Inspection Act which contains no provision for the charging of fees for the approval of chemicals proposed for use on poultry or in poultry plants.

He also cited the chemical or food additives bill introduced in the House in 1957, which, he said, is quite similar to the pesticide-residue amendment of 1954. This bill contains no fee provisions except for those instances where petitions for the approval of a food additive are to be referred to an advisory committee. "The manufacturer or user of a chemical intended for use in food would not have to pay a fee in order to file a petition and have the FDA examine the data to establish its safety," Mr. Miller continued. "This is proper, since the purpose of the Food and Drug

Administration's review of the data is the protection of public health, and not the conferring of some benefit upon a particular chemical or food company."

The chemical additive bill was passed by the House in August, with no provision for the charging of fees such as is now being carried out in Public Law 518, the Miller amendment.

"It is an injustice to require those who must obtain approval of their chemicals . . . to pay fees to obtain such approval while those who would obtain similar approval under the food additive amendment, would not have to pay such fees," Mr. Miller continued. "The two sections are similar in requirement and in operation," he went on. "The FDA has essentially the same responsibility under both sections. It would be concerned with essentially the same considerations and types of data under both sections.

"It would take as much, if not more, time and effort on the part of the FDA to consider and approve a chemical under the proposed section 409 as it now does under existing section 408 as regards pesticide chemicals. Hence, there would appear to be no sound reason why FDA should charge fees for its operations under section 408 while not charging them under proposed section 409."

Just how important pesticides are to the economy in general and to agriculture in particular, was brought out further by Mr. Miller in additional remarks. "It would not be possible to produce as much food as is now produced without the proper use of pesticide chemicals on food crops," he told the Congress. "If they were not used, I doubt if it would be possible to produce apples, peaches, potatoes, citrus, and tomatoes, and many other crops would be drastically reduced. I doubt if the American people would be fed adequately unless crops and livestock are protected from insects and other pests."

The benefits gained by the public at large through the application of various pesticides to control agricultural insects, plant diseases, weeds, and insects which carry malaria and other diseases, were enumerated by the legislator. He mentioned the eradication program against gypsy moth, the pest which has destroyed forests in Pennsylvania, New York, New Jersey and in New England, and the fire ant and the Mediterranean fruit fly in the South. He also deplored the charges made against the programs. Of these charges, he said, "Many of them were half-truths warped by personal prejudices."

Mr. Miller assured the Congress that public health is given major consideration in all of these mass control projects, and reminded that adequate safeguards are included in all the spray programs. Such safeguards apply to wildlife as well as to humans, he said.

In conclusion, the congressman made a strong plea to make haste slowly in "doing anything drastic to curtail these eradication programs. We should carefully weigh all the facts, giving prime consideration to the health and economic benefits derived. I am convinced that when this is done, the Congress will seek to expedite these programs," Mr. Miller concluded.

The pesticide industry is grateful to have such a clear, strong voice being heard at this time in the Halls of Congress. That is putting the good public relations licks where they may count the most.



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MEETING MEMOS

Sept. 27—Vegetable Crops Field Day,
University of California, Davis,
Cal.

Oct. 2—New Jersey Fertilizer Conference,
Rutgers University, New Brunswick, N.J.

Oct. 27—Western Range Fertilization Conference, Riverview Country Club, Redding, Cal.

Oct. 21-24—Stored Grain Insect Control Conference, Kansas State College, Manhattan, Kansas.

Oct. 28-29—American Society of Range Management Meeting, Riverview Country Club, Redding, Cal.

Meeting Memos listed above are being listed in this department this week for the first time.

Sept. 10—Agronomy Fall Field Day, Lincoln, Neb.

Sept. 10-11—Midwest Regional Accident Prevention School for Supervisory Personnel of the Fertilizer Industry, National Safety Council Headquarters, Chicago.

Sept. 11—Field Day, Northern Virginia Pasture Research Station, Middleburg, Va.

Sept. 11—Agronomy Farm Field Day, Purdue University Agronomy Farm, Lafayette, Ind.

Sept. 12—Agronomy Field Day, University of California, Davis, Cal.

Sept. 15-17—Canadian Agricultural Chemicals Assn., Sixth Annual Meeting, Fort Garry Hotel, Winnipeg, Manitoba.

Sept. 16-17—Farm Advisers Fertilizer Technology School, University of California, Berkeley. Headquarters: Giannini Hall.

Sept. 24—New England Fertilizer Conference, Bald Peak Colony Club, Melvin Village, N.H.

Sept. 25—Chemical Industry Safety Workshop; Shamrock Hilton Hotel, Houston, Texas.

Oct. 1—Field Day, Eastern Virginia Research Station, Warsaw, Va.

Oct. 13—Agricultural Research Institute Panel on Problems Related to Agriculture in the Fertilizer Producing Industry, Academy of Science Bldg., Washington, D.C.

Oct. 14-15—Western Agricultural Chemicals Assn., Annual Meeting Villa Hotel, San Mateo, Cal., C. O. Barnard, 2466 Kenwood Ave., San Jose 28, Cal., Executive Secretary.

Oct. 16—National Plant Food Institute Conference on Chemical Control Problems; Shoreham Hotel, Washington, D.C.

Oct. 17—Association of American Fertilizer Control Officials, 12th Annual Meeting, Shoreham Hotel, Washington, D.C., B. D. Cleainger.

CALENDAR FOR 1958-59

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31																					30	31							

Dec. 8-10—Chemical Specialties Manufacturers Assn., Annual Meeting, Commodore Hotel, New York.

Dec. 17-18—Beltwide Cotton Production Conference, Rice Hotel, Houston, Texas, sponsored by the National Cotton Council.

Jan. 20-22, 1959—California Week Conference, Santa Barbara, Cal.

Jan. 7-9—Thirteenth Annual North-eastern Weed Control Conference

Hotel New Yorker, New York.
July 7-9—Pacific Northwest Plant
Fourteenth Annual Regional

**Food Assn., 10th Annual Regional
Fertilizer Conference, Tacoma,
Wash.**

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Inorganic Chemicals Names Production Superintendent

SODA SPRINGS, IDAHO — The appointment of Russell H. Crouse as production superintendent of Monsanto's inorganic chemicals division's plant here, was announced by R. R. Rumer, plant manager.

Mr. Crouse replaces W. P. Dunlap, Jr. who has accepted a position as production superintendent at Mobay Chemical Company's New Martinsville, W. Va., plant.

ville, W.Va., plant.

Mr. Crouse, who served with the U.S. Navy during World War II, graduated from the University of Utah in 1951 with a M.S. degree in mining engineering. He was employed by Monsanto at Soda Springs in 1952 as a mining engineer and in 1954 was promoted to mines and burden supervisor.

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